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Progress of Medicine in 1929

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It would be pleasant if one could tabulate epoch-making discoveries in medicine each year, but unfortunately progress in this field is a slow process, based on cumulative evidence of thousands of cases, observed over a long period of time. Scientific advances do not come out of a clear sky; they are usually built up from the work done by our predecessors—new links added to the chain.

The word progress is definite; it means advance or development. Perhaps it should be more to the point if we considered our subject as one of trends rather than advances, because time will prove their efficacy.

In reviewing the medical literature this year we see no epoch-making discoveries. The trends which we shall attempt to record may or may not prove to be advances.

Liver extract.—The value of liver extract in hypertension is reported by Dr. T. L. Althausen (*Am. J. Med. Sciences*, Mar., 1929), as a result of research work in the University of California Medical School. The treatment of 25 hypertensive patients with liver extract brought about lowering of blood pressure and relief in a majority of the cases. The extract was injected intramuscularly, beginning with .5 c.c. and increasing to 5 c.c. three times a week. Marked arteriosclerosis influenced the treatment unfavorably. No undesirable symptoms from the reduction of hypertension were observed in any case. (This extract is now being used for scurvy, acne, and toxemia of pregnancy, besides its chief use for pernicious anemia.)

Tests for cerebro-spinal fluid.—Tests of results obtained with 500 cerebro-spinal fluids to which colloidal benzoin and colloidal gold tests were applied are outlined in the *Edinburgh Medical Journal*, February, 1929, by Kernack and Vogue. It is concluded that there is a

substantial agreement between the results of the two colloidal reactions and that, particularly for routine laboratory work, the general benzoin test has practical advantages.

Dementia praecox.—R. G. Hoskins and Francis H. Sleeper, of Worcester State Hospital, Mass., record in *Endocrinology*, May-June, 1929, a metabolic study of 80 subjects of dementia praecox, of which one-half gave evidence of endocrine gland deficiency. In fourteen cases the thyroid and in thirteen the pituitary gland was involved. In thirteen others the specific gland was not determined. Fifty-three of the eighty patients received gland treatment. In the endocrinopathic group half showed mental improvement. In the non-endocrine group only five showed improvement out of thirty-nine.

The highest incidence of improvement was noted in the catatonic and the lowest in the paranoid group, this possibly correlating with the incidence of respective deficiencies. Of the gland substances used, thyroid proved most efficacious. The degree of improvement to be expected from use of gland substance has not been determined, nor the permanency. It is concluded that endocrine deficiency plays a significant rôle in dementia praecox and that endocrine therapy is effective in its treatment.

(I recently saw a patient supposedly suffering from dementia praecox, which proved to be myxedema, and there was complete recovery following administration of thyroid extract.)

Bile Peritonitis.—O. H. Horrall, of Chicago, performed experiments on dogs anesthetized with ether and operated on aseptically to determine whether bacteria are the only harmful agents in bile peritonitis; what would

be the effect of bile continuously poured into the peritoneal cavity; what effect would be produced by varying the quantity of bile and what effect bile from other dogs injected into the peritoneal cavity would produce. It was found that bile in the peritoneal cavity of dogs in amounts of 5 c.c. or more per kilogram of body weight causes peritonitis and death within 24 hours. Bacteria are not essential and do not modify the course of bile peritonitis when bile is present in a sufficient quantity to cause death within 24 hours. It appears, therefore, that bile peritonitis is a clinical entity.

The cause of the high mortality—50 per cent or more—in bile peritonitis appears to be due largely to the failure to make an early diagnosis. Chemical treatment was of little value. The treatment found to be best was the closing of the opening in the gall bladder or bile passages, thorough lavage of the peritoneal cavity with warm physiologic sodium chloride solution, and then leaving a few hundred c.c. of salt solution in the abdomen followed by complete closure. With this, intravenous injection of salt was of value. (*Arch. Int. Med.* 44; 114; Jan., 1929.)

Carbohydrate Metabolism in Cancer.—Jackson made a dextrose test in all his patients with cancer. He found that those who metabolize sugar readily, and in whom there is a return to the fasting level of from 90 to 100 mg. in three hours, promptly improve when treated by radium, surgery, roentgen ray or electrocoagulation. The patients who had an average of 117 mg. of blood sugar, and in whom there was a failure of blood sugar to return to the base line in three hours after the administration of 100 Gm. of dextrose, had a greater tendency to return of cancer. These cases usually showed a return to the fasting level within four hours and are much more stubborn to treat than those in whom a blood sugar level is from 100 to 110. Cases in which there was an initial blood sugar of from 120 to 155 were, as a rule, of the rapidly growing and malignant type and did not respond to treatment. The latter, it was found, if put on a sugar-free diet and the blood sugar reduced to the level of 110, were greatly improved. Some of the cases showed an initial low blood sugar. This explains why, given two patients with essentially the same pathological history, one will respond to treatment and the other will not. (D. Jackson, *Texas State Journal of Medicine*, 24; 622; Jan., 1929.)

New Apparatus for Diathermic Application of Heat.—Nagelschmidt describes the apparatus, which he holds is more convenient and less dangerous than the type commonly used. Direct contact with the electrode is not necessary. Treatments may be given for from four to five hours at a time. The apparatus can be used for heating the thorax in pneumonia, the brain and spinal cord in cerebro-spinal meningitis, and the pelvis in gonorrhea, and also it might be used to produce an aseptic fever for combating infectious disorders, in which would be eliminated injurious effects of ordinary fever while retaining the protective qualities. It is necessary that the apparatus be so regulated that the body temperature be never raised more than 106.5° F. (*Deutsche Medizinische Wochenschrift* 54; 2102; Dec. 14, 1928.)

(Any improvement in electrodes will be most welcome.)

Vitamin D and Caries.—In a group of 21 children, average age 5½ years, it was discovered by Mennalby & Pattison, the addition of Vitamin D in the form of irradiated ergosterol inhibited carious developments and arrested an infection in many carious teeth. This shows that Vitamin D is a powerful agent in the inhibitory process previously demonstrated as following the intake of fat soluble vitamins as contained in cod liver oil, egg

yolk and extra milk. (*British Medical Journal*, 2; 1079; Dec. 15, 1928.)

Permanganate treatment of pneumonia.—Dr. J. L. Chester reports that owing to the recovery of a moribund pneumonia patient following permanganate treatment, this method was used in Providence Hospital, Detroit, and that of 23 patients with lobar or bronchopneumonia, 21 recovered and 2 died. Also, in Eloise Hospital, a charity hospital whose patients are human derelicts, 20 pneumonia patients, with severe and complicated cases, in an almost hopeless condition, were selected. Ten were treated by other methods and all died. Of the ten treated with permanganate, five recovered.

The solution used consisted of 2 gr. of permanganate to 1½ pints of sterile water, injected rectally by means of a funnel and catheter, the patient lying on the left side. Generally the initial injection was 4 ounces, repeated every three hours. Within 12 hours the patients usually began to show improvement. The cachet method of administration may be employed where the rectal seems impractical. (*Ann. Intern. Med.*, May, 1929.)

(We shall have to observe the effects of any treatment in hundreds of cases before definite conclusions can be formed.)

Encephalitis.—Dr. E. A. Strecker, of Philadelphia, reports, after studying fifty cases of encephalitis, that fairly typical cases of acute encephalitis which showed at the outset three or more of the usual syndrome of signs and symptoms, are more likely to be followed by severe conduct deviations than are atypical examples of the disease. Where behavior was only slightly disturbed, there was a notable absence of fever, delirium and well-marked influenza-like phenomena. Behavior disturbances include restlessness and unusual excitability, stealing, lying, truancy, sexual deviations, tantrums, alcoholism and personal filthiness. (*Arch. Neurol. and Psychiat.*, Jan., 1929.)

(Much more attention is being given to mild cases of encephalitis following the simpler infectious diseases.)

Undulant Fever.—A complete and rapid cure has recently been reported by MM. H. Darré and A. Lafaille to the Academy of Medicine by the use of acriflavine. A single intravenous injection of 0.2 Gm. caused the fever, which had been persisting more than two months, to subside in twenty-four hours. A relapse after eighteen hours was again dispelled in twenty-four hours by an injection of 0.2 Gm. given days after the onset of fever. The cure has been maintained more than three months. The following procedure is recommended: a first injection of 0.2 Gm., a second of 0.3 Gm. two days later, and a third injection of 0.4 Gm. three days after the second. Relapses should be treated in the same way as the first attack. Further observation will be necessary to establish definitely the efficacy of the new treatment.

(During this year increased attention has been given to undulant fever. Several state board of health laboratories are doing routine agglutination tests for this disease.)

Hypervitaminosis.—So much attention has been given to vitamins that it has become necessary to consider the danger of an excess. There is also a danger in the indiscriminate use of the ultraviolet rays.

Iodine in Thyroid Gland.—Experiments by C. R. Harrington and Sydney R. Randall, of the University College Hospital Medical School, London, justify them in entertaining the definite view that there are only two iodine containing compounds in the thyroid gland, namely, thyroxine and 3:5-diiodotyrosine. In the gland used for their experiments they found the two compounds

about equally distributed. Their gland material was all from one geographical source and showed constancy of iodine content throughout all seasons of the year. There is little doubt that variations of the distribution of the two compounds may occur which would account for any lack of parallelism between iodine content and physiological activity. (*Biochemical Journal*, v. 23, no. 3, 1929, p. 375.)

Following this announcement, G. L. Foster has succeeded in isolating diiodotyrosine from partially purified thyroglobulin in sufficient quantities to account for 30 per cent of the total iodine.

Rickets and Hypcholesterolemia.—In connection with the fact that treatment of rickets has advanced a step with the use of irradiated sterols, it is interesting to note that Dorencourt and Seitzoff have reported to the Society of Pediatrics concerning the percentage of cholesterol found in the blood of rachitic children. In the 20 cases examined by them the proportion was found to be 0.83 per cent in place of the normal 1.40 per cent. This hypcholesterolemia is directly associated with the rachitic process. It is directly influenced by effective anti-rachitic treatment (ultraviolet rays and irradiated sterols) (*J. A. M. A.*, Aug. 10, 1929, p. 469.)

Rheumatic Fever Caused by Rat Flea.—J. T. Clark, in the *British Journal of Children's Diseases*, London, 26; April-June, 1929, points out that the geographical distribution of *ceratophyllus fasciatus*, the common rat flea of northern temperate climates, and rheumatic fever are so similar as to make it seem possible that the insect is connected with the disease. These similarities include temperature and humidity—temperature being the most important. Rheumatic fever does not enter through throat conditions caused by bad ventilation but it may be associated with drain and sewer gas pipes in the house, admitting the flea at the same time. As the fever occurs without inflamed throat, it would appear that it is the flea and not the gas that causes the fever.

Blood content in fibroma and cancer.—Examinations of the blood serum of 60 women with fibroma and 60 women with cancer showed to Scheptinsky and Kafitin that in fibroma the calcium content of the blood was about as in normal women. Removal of the fibroma is followed by an increase in the calcium content of the blood, the upper limit never being exceeded. In cancer the calcium content is usually normal and in fibroma the potassium content of the blood serum is within the normal limit in 65 per cent of the cases; in 35 per cent it is slightly decreased. It increases after removal of the fibroma. In fibroma the phosphorus content is usually within the normal limits; in cancer it is considerably decreased in 70 per cent of the cases. Sodium and chlorine in normal amounts in both cases. (*Archiv. für Gynakologie* 136; Apr. 24, 1929.)

Umbilical Calculus.—Eleven cases are reported by Kausch for the purpose of directing attention to a condition not usually detected. In none of the eleven cases examined was a stone detected primarily. Their size varied from 0.7 to 2 cm. in length and corresponding diameter. A deep umbilical fossa is necessary to stone formation. The only symptoms usually manifested are irritation of the surrounding tissue. In the author's first case a suspicion of carcinoma metastasis led to the discovery of the stone. He finds that physical examination should include a separation of the edges of the umbilicus and an inspection of the sulcus (*Archiv. für Klinisch Chirurgie*, 155; p. 181; Apr. 25, 1929.)

Lupus Erythematosus.—In 30 cases of lupus treated by Markley and Phillpotts with gold sodium thiosulphate, all showed improvement. All but three cases were cured,

these being of very long standing. Treatment should begin with small amounts, an initial dose being 25 mg. in 2 c.c. of sterile water, given intravenously. Treatments should be given once a week, each day's being increased by 5 mg. if no toxic effects are manifested. The maximum dose should not exceed 100 mg. (*Colorado Medicine* 26; p. 177; June, 1929.)

Alveolodental Pyorrhea.—Dr. Rene Vincent states that in the gums, particularly in the region of the interdental bridges, there is a lymphoid tissue similar to that of the tonsils and appendix, which serves as an excretory organ of micro-organisms. These come from distant points of infection, sometimes from the intestine. In the gums they cause inflammation. This causes localized necrosis of the maxillary bone and the fetid suppuration of pyorrhea. As a deduction, Vincent recommends ascertaining, in the blood taken from the region of the gums, what micro-organism is responsible for the disturbance and the preparation from it of an auto-vaccine. This would cause an arrest of the pyorrhea and check the primary causal infection. (*J. A. M. A.*, 93; p. 46; July 6, 1929.)

Erythremia, or Vaquez' Disease.—This is marked by an undue increase of erythrocytes in the blood and has always been combated with difficulty. MM. Vaquez and Morequin have reported to the Academy of Medicine three clear-cut cases in which remarkable results have followed the use of phenylhydrazine hydrochloride. This is administered by mouth, the initial dose of 0.001 Gm. being gradually increased to 0.0025 Gm. This causes the red corpuscles to diminish in number while the leucocytes increase rapidly. Generally this result is secured within two weeks and after that the treatment is kept up intermittently. No bad effects have been noted except a slight subicteric state, but Vaquez advises caution in the use of the drug. (*J. A. M. A.* 93; July 6, 1929; p. 46.)

Tripsine and Ephedrine in Allergic Conditions.—Instillation into the trachea of 2 cc. ephedrine (1 to 1.5 per cent) dissolved in a cajuput oil preparation by a supraglottic method has been tried by Caulfield in seventeen cases of bronchial asthma. In only two cases was it without favorable effect; in six it had considerable effect, and in nine it was of pronounced benefit in comparison with methods previously tried. The favorable effect was noticeable from two to six days. The instillations are made at weekly or bi-weekly intervals. Tripsine (90 grains or 6 Gm.) daily, in three doses of 30 grains each, for ten days, followed by an intermission, also yields good results in these and other allergic cases. (*Canadian M. Assn. Journal*, 20; p. 498; May, 1929.)

Ultraviolet Therapy for Tuberculosis of the Middle Ear.—This was first applied by Dr. A. F. Cemach, of Vienna, using the quartz lamp. Since then he has combined direct quartz light irradiation with systematic general treatment. He has treated 62 laryngeal tuberculosis patients by this method, obtaining 60 per cent cures of from one to seven years' duration. He prefers this to the operative treatment of tuberculosis of the larynx. Tuberculosis of the pharynx and oral cavity is similarly treated. In the nose the most immediate indications for phototherapy are: eczema, tuberculosis (lupus), hay fever, and ozena. In hay fever Cemach obtained about 75 per cent complete cessation of all symptoms. Hay asthma is not influenced by phototherapy. Middle ear tuberculosis responds reliably to light therapy. This disease, hitherto considered incurable, now shows 80 per cent cures. (*Eye, Ear, Nose and Throat Monthly*, June, 1929.)

Albumin in Sputum Sign of Tuberculosis.—P. Moxey,

in *Practitioner* (London) August, 1929, reports that more reliance can be placed on the presence of albumin in sputum than on the presence of tubercle bacilli in a diagnosis for pulmonary tuberculosis. In all cases examined where tubercle bacilli were found, albumin also was detected. Also, as estimated by Esbach's test, the quantity of albumen is proportionate to the numbers of bacilli. Moxey considers it reasonable to suppose, since albumin is always found with the bacilli, that the presence of albumin, even if the bacilli can not be detected, must be of considerable importance in diagnosing a pulmonary lesion, and finds it so in actual practice. Of 2,500 examinations of sputum, about 25 per cent showed both bacilli and albumin; in nearly 50 per cent only albumin was present, and in the remainder both were absent. In the past four years there have been but two cases in which bacilli were present and albumin absent, on the first test, and in both these albumin was found on a second test.

Staining Tubercle Bacilli.—The latest challenge to the Ziehl-Neelsen method of staining is of interest because it boldly proposes to replace the stain of the tubercle bacillus. The exponent of this new stain has been able to obtain results with diluted sputum that were definitely superior to the results obtained by staining the same sputum with carbolfuchsin. His stain is made by dissolving 4 Gm. of safranin in 100 c.c. of distilled water to which has been added 1 c.c. of normal sodium hydroxide. The advantage claimed for this solution is that it is easy to prepare, stable, and stains the bacillus in a shorter time than carbolfuchsin. Also it gives a more vivid and visible hue. (C. G. Ransom: A New Stain for Tubercle Bacillus. *J. Tennessee M. A.*, 21; 381; Feb., 1929.)

Pernicious Anemia: Treatment of by Desiccated Stomach.—Castle has demonstrated that the stomach of normal persons secretes a substance which can develop a blood-maturing substance from meat. Work was started at the Simpson Memorial Institute on the nature of the material in stomach which could produce a hematopoietically active substance, but the experiments were later carried on with the association of Dr. Elwood A. Sharp, director of the department of experimental medicine of Parke, Davis and Company. He concluded that the feeding of stomach should have the same effect on patients with pernicious anemia as liver. The work of both laboratories was then centralized and the material tested under controlled conditions. The preparation used was made by desiccating fresh whole hog stomach so that 30 Gm. of the dried substance represented 190 Gm. of the fresh tissue. In later material the fat was removed by petroleum benzin, so that 30 Gm. of the final material represented 218 Gm. of the fresh tissue. The product had only very slight odor or taste. Daily feedings of from 15 to 30 Gm. of this in suspension in water were given to three consecutive patients with typical pernicious anemia. In each case there was an increase in the percentage of reticulated red blood cells, comparable with the increase in the reticulocyte percentage induced by feeding commercial extract made from 300 to 600 Gm. of liver.

From the limited data available, it appears that stomach tissue, per gram of fresh material, is more active than liver. It is apparent that stomach tissue and liver are both active as a red blood cell maturing agent in cases of pernicious anemia, in the absence of "free" hydrochloric acid. It may then be concluded that whole desiccated hog stomach and hog stomach defatted with petroleum benzin produce a satisfactory hematopoietic remission in pernicious anemia. (Sturgis and Isaacs, *J. A. M. A.*, Sept. 7, 1929.)

New Process for Making Liver Extract for Use in Pernicious Anemia.—Castle and Bowie have developed

from the original procedure by Cohn and his associates in developing extracts of liver, a new process by which it is possible for any intelligent person to make from inexpensive beef liver an extract effective in the treatment of pernicious anemia. The necessary utensils are a meat chopper, a quart rubber-sealed jar, two enamel saucepans, a wire strainer (mesh about seventeen to the inch), a tablespoon, unbleached fine mesh cloth, and a drinking glass.

1. In the evening a little over half a pound of beef liver should be ground fine twice through the chopper.

2. A glassful (280 Gm.) of the liver pulp (P_1), with one and one-half glasses (375 cc.) of cold water, should be placed in the glass jar, shaken five minutes, then allowed to stand overnight in the icebox, being shaken occasionally if convenient.

3. In the morning the jar is again shaken vigorously for five minutes. Then the reddish brown liquid (L_1) is drained off with a strainer. The liver pulp (P_2) remaining in the strainer is replaced in the quart jar with one and one-half glasses of cold water, shaken five minutes, and kept in the icebox until evening.

4. The strained liquid (L_1) is heated in an enamel saucepan, with constant stirring, over as hot a flame as possible. The liquid will turn brown and curdle. It should be allowed to boil only an instant; then the saucepan is removed from the fire and cooled as rapidly as possible by immersion in cold water, until it is possible to squeeze the contents through double unbleached cloth as in making jelly. The liquid is yellowish (E_1).

5. The dry pulp in the cloth is replaced in the saucepan and a little over a half glass of water (40 C.) added. This is stirred until the pulp is broken and then again it is strained through the cloth. The second yellow liquid is added to the first and the dry pulp discarded.

6. There should be about two glasses of the yellow liquids. This is the extract which a patient should take in one day, either hot or cold. A little salt improves the flavor. If warmed, it should not approach the boiling point.

7. On the second evening, and each evening thereafter, the jar containing the original liver pulp, which is being extracted for the second time, is removed from the ice box and after being shaken five minutes, the available liquid is drained off as in procedure 3. This liquid is used instead of the one and a half glasses of water with the new liver pulp as in procedure 2. This secures a double extraction of each day's raw liver pulp without increasing the volume of the extract.

As this extract can be prepared at the patient's own home, at little cost except the liver, it meets the difficulty of continuing the use of the liver diet over a long period at a great expense. It appears desirable for most patients to take daily, either raw or cooked, about 200 Gm. of prepared liver, or extract from 300 Gm. of liver. The daily cost of many commercial extracts would be about 85 cents a day for a patient. Calf's liver may be nearly half as expensive. But beef liver, which costs from 15 to 30 cents a pound, reduces the expense. (*J. A. M. A.*, June 1, 1929.)

Colitis: Physical Therapy Treatment.—In over 600 cases of colitis Dr. L. H. Levy, of New York, reports that even those cases amenable to diet and medication respond more quickly and the results are more lasting if physical therapy is used also. The basic treatment is ultraviolet radiation and to this is added infra-red radiation. When infection is present, local measures must be employed. The abdominal surface is first exposed for half an hour to the infra-red lamp. This is followed by increasing dosage front and back, with ultraviolet radiation, using mercury vapor lamp. At the beginning the

carbon lamp is also used, with an exposure of 30 minutes to the abdomen only. The exposures are reduced in duration as the time of exposure to the mercury vapor lamp is increased up to 15 minutes front and back. Three times a week, 30 treatments as a minimum, are given. The results in 600 cases are satisfactory. (*Physical Therapy*, May, 1929.)

Substitute for Table Salt.—A sodium malate salt of the acid found in apples, specially prepared and marketed under the name of "Eka salt" has been in use in cases where salt restriction is desired. While the salt restricted diet is necessary in cases of edema, there is evidence to prove that salt in the diet is not detrimental in most cases of essential hypertension.

Diet in Cardio-renal Disease.—There is growing evidence that diet does not play an important part in the treatment of these conditions. Many able observers believe that a nitrogenous diet, tobacco, coffee and alcohol do not have much effect on the causation of diseases of the arteries or kidneys.

Obesity; New Method of Treating.—F. A. Evans and J. M. Strang gave their patients from six to eight calories per kilogram of weight, and obtained a more rapid reduction. More than enough protein was given to keep the patient in nitrogen equilibrium, i. e., 1 Gm. of protein per kilogram. With 1 Gm. of protein per kilogram, enough carbohydrate and fat were calculated to give 25 calories per kilogram, this being distributed in such proportion that the ketogenic-antiketogenic ratio was 1.5 to 1. The menu was made up to fit figures for protein and carbohydrates and as much of the fat as was possible was omitted, e. g., one menu contained protein 60 Gm. (240 calories); carbohydrates, 45 Gm. (180 calories); fat, 29 Gm. (261 calories). The patient weighed 80 kilograms. In this diet, therefore, she was getting 8.5 calories per kilogram; assuming that she needed 25 calories, as calculated in her reduction diet, but 30 calories per kilogram to maintain her weight, there was a deficit of 21.5 per kilogram. If these calories were supplied from her own fat, she was using 185 Gm. of fat, which is equivalent to 212 Gm. of her fatty tissue a day. She should, therefore, lose 5.4 to 6.4 kilograms a month. One hundred and eleven patients were treated and lost weight rapidly. They were not hungry and high systolic blood pressure was reduced. Headaches were relieved. Most of the menstrual diseases common in the obese are cured by diet alone. (*American Journal of Medical Sciences*; 77; 339; Mar., 1929.)

New Percussion Method for Deep Lying Organs.—Starting with Koranyi's method, used by him in examining the apex of the lung, Révai applies his forefinger perpendicularly over the cardiac dullness and taps along the dorsum of the finger until resonance finally stops. Continuing to tap at this zero point with the same strength, the pleximeter finger is moved to the limit of the relative dullness, where the resonance suddenly reappears as distinct as at the limits of absolute dullness. The author recommends that the examination be continued by centripetal percussion. The zero point is selected in the lung area. By stronger percussion a slight air tone will be heard which disappears at the heart outline and still better results are obtained for dorsal percussion. This method is recommended also for liver and kidney percussion. (*Medizinische Klinik*, 25; 346, Feb. 22, 1929.)

New Technic for Iodized Oil Injection of Uterus.—Adair and McDonald insert a rubber mushroom or retention catheter into the uterus—the outer lip of the cervix is held with a tenaculum while the catheter is being placed, but released before roentgen exposure. The catheter is then drawn down so that the mushroom tip rests over the internal os. Iodized oil is then injected.

This method requires less time and gives as good results. To avoid an occasional reflux of oil into the vagina, a catheter should be selected of a caliber suitable to the degree of patency of the external os and the cervical canal. (*Minn. Med.* 12; 146; Mar., 1929.)

New Reaction for Syphilis.—Meinicke differentiates the new test from his other method, called turbidity reaction, by designating this as clarification reaction. He uses bovine extracts. The characteristic is that the original opaque mixture becomes clear when the reaction is positive. It remains turbid when negative. The test tubes containing the completed mixture should be left from 18 to 20 hours at a temperature of about 68 degrees F. (*Klinische Wochenschrift* 8; 112; Jan. 15, 1929.)

Treatment of Inoperable Cancer by Colloidal Preparations.—J. L. Jona has experimented with a new method of administering metals in combination with red blood corpuscles, combined in a paste. He uses sometimes the patient's own corpuscles, and again those of an ox or sheep. Bismuth-lead preparation contained 4.8 per cent bismuth, 2.7 per cent lead, while the copper-lead contained 3.13 per cent lead and 0.6 per cent copper. The preparation was suspended in 1 Gm. of paste to 4 c.c. of physiologic solution of sodium chloride. Dosage was determined by preliminary experiments with dogs. With the bismuth-lead preparations the general dose was 16 c.c. A dose of 20 c.c. nearly proved fatal. Of the copper-lead preparation the dose was 12 c.c., which experiments showed to be safe. Generally four injections were given and the dose repeated once a week. Jona treated 14 apparently hopeless patients. Nearly all had been operated on and many had had high voltage therapy or radium or both. Nearly all showed temporary improvement after injections. Many of the patients complained of abdominal or neuritic pains in the limbs, due to the injections, and some complained of pains in the joints, which may have been toxic. In later cases these conditions were anticipated by giving acetylsalicylic acid during the period of injections. These patients have complained very little of pains. (*Med. J. of Australia* 2; 587; Nov. 10, 1928.)

New Researches in Cerebrospinal Fluid.—Norsa's new method discloses the latent reactions of the pre-clinical period of syphilis in which the first reactions are amenable to treatment, sometimes healing spontaneously, while the second are indicative of meningo-encephalic lesions, which will later produce the clinical symptoms. In the two fundamental types of reaction of the cerebrospinal fluid, the first is attended with an accession of lymphocytes and by polymorphous mononuclears, and points to a superficial meningeal inflammation. The second is characterized by plasma cells and large mononuclears, indicating a profound parenchymal lesion. The method is much superior, from the diagnostic and prognostic standpoint, to a mere cell count. (*Gazzetta degli Ospedali e delle Cliniche* 49, 1473; Nov. 18, 1928.)

New Method of Qualitative and Quantitative Determination of Sugar Contained in Urine.—Moreck uses as a reagent o-nitrophenyl propionic acid dissolved in alkaline solution. The quantitative determination gives accurate results and requires little time, and can be applied by the general practitioner. To make the tests more exact, standard color specimens can be used for comparison. (*Munchener Medizinische Wochenschrift* 76; 201; Feb. 1, 1929.)

New Method for Estimation of Albumin.—F. Spanier used Spiegler's reagent as modified by Jolles, which contains mercuric chloride 10 Gm., citric acid and sodium chloride, 20 Gm. each, distilled water 500 c.c. First the presence or absence of albumin in urine is ascertained, and the quantity is ascertained by other methods. The

greater the amount the higher the dilutions of the reagents should be. Ten drops of this solution is poured into a small test tube and undiluted urine is acidified with 30 per cent acetic acid solution. If a ring is not formed between the two liquids in two minutes, the procedure must be continued. If the ring appears before that time the urine is poured into the weaker solution until the ring is formed exactly after two minutes. The reagent and not the urine is diluted. (*Zeitschrift für Urologie* 23; 115, 1929.)

Two New Electrophonocardiographic Methods.—Duchosal described an apparatus in which sonorous vibrations of the heart produced electric currents in a microphone placed on the chest of the patient near the heart. These are amplified and received by an electromagnet. This causes an iron plate between the two poles of the magnet to vibrate. These vibrations are transmitted to a special oscillating electro-optical system projecting luminous rays corresponding to the currents, on a photographic box, which registers the curve of the heart sounds. This is placed at the side of an electro-cardiograph and makes possible the registration of phonogram and electro-cardiogram. In the other apparatus the vibrations of the iron plate between the poles are transmitted to a registering needle which traces the curve of the heart sounds on a ribbon of smoked paper. (*Revue Medicale de la Suisse Romande* 48; 959; Nov. 10, 1928.)

New Apparatus for Prolonging Artificial Respiration.—A clinical test with the apparatus by Drinker and McKhann indicated that it fulfills requirements. Artificial respiration was maintained almost continuously for 122 hours in an 8-year old girl suffering from acute poliomyelitis, without discomfort or apparent harm. Neither her sleep nor her nourishment was disturbed by the apparatus. The autopsy showed that death was due to cardiac failure, and no evidence of over-inflation of the lungs appeared. (*J. A. M. A.* 92; 1658; May 18, 1929.)

Tests of renal function.—Leslie Witts, of the London Hospital, describes tests of liver function on people suffering from various disorders. These experiments showed that there is no evidence that amino-acids significantly increase in the blood with diseases of the liver, except in cases where the red cells of the liver undergo necrosis and autolysis. His experiments also show that urea formation may sometimes be deficient in diseases of the liver, but that disturbance of urea formation occurs in conditions not associated with diseases of the liver, while in obvious liver diseases urea formation may be normal. In diabetes the blood urea may fail to rise to the normal after the ingestion of large amounts of amino-acid. This is not a result of temporary disease of the liver, as it persists over months. It is entirely remedied by the injection of insulin. Tests based on changes in amino-nitrogen or urea in the blood after the ingestion of proteins or amino-acids are of no value in the diagnosis of hepatic disease. (*Quarterly Journal of Medicine*, April, 1929.)

Iron Storage After Oral or Subcutaneous Administration.—Cyril J. Polson, of the University of Leeds, after experiments on rabbits of both methods of iron administration, found that the liver was the principal site of storage. A smaller amount was stored in the spleen and lymphatic glands. The rate of storage in the liver is faster after subcutaneous than oral, but neither is as fast as in the intravenous method. The process is probably the same irrespective of method. The small excess of iron in the spleen supported the view that the greater amount found after intravenous administration was caused by a transfer from the lungs. The cecum and the kidneys contained an excess of iron. No excess was

observed in bone marrow, and the lungs played no part in the metabolism of iron. (*Quarterly Journal of Medicine*, October, 1929.)

New Test for Renal Function.—A new test of renal efficiency, the glycerophosphate test, is described by Brann and Kay. It depends on extra phosphorus excreted in the urine in the hour following an intravenous injection of 10 c.c. glycerophosphate in approximately 50 per cent sterile solution in the median basilic vein. By subtracting the hourly normal value from the amount of organic plus inorganic P in the hour following injection, the excess phosphorus secretion is obtained. As a result of comparisons between this new glycerophosphate test, in 44 cases, with the urea concentration and phenolsulphonephthalein tests, it was found in all cases at least as valuable and in several cases where the others were not determinate, the new test agreed most closely with clinical findings. (*Quarterly Journal of Medicine*, January, 1929.)

Pulmonary Carcinoma.—Improved methods of roentgen diagnosis have aided in the diagnosis of primary carcinoma of the lung. The increased incidence of the disease is probably in evidence because of better diagnostic methods.

Tuberculosis.—B. C. G. Vaccine is recommended by Troisier and his associates in all adults and even in old persons, since tuberculosis has been observed in those over sixty.

The harmlessness of B. C. G. vaccine is called into question by Petroff and his co-workers. There seems to be a possibility that one human body into which it has been injected may transmit it to another. Indications exist that avirulent organisms may be transmuted into virulent ones by being cultivated on a medium containing its antiserum.

Syphilis.—The report of Harrison's experiments at St. Thomas Hospital since 1926 deals with earlier stages of the treatment. He calls attention to the variety of effect from identical treatments on different patients, and urges a study of individual unresponsiveness to treatment. Demonstration was made that use of arsenobenzol compounds at the early stages subsequently may reveal a higher percentage of neurosyphilis than when mercury or bismuth has been used with it. It is also shown that extragenital infection is less frequent than commonly believed.

Bismuth therapy has a certain advantage over mercury in that it is better tolerated.

In a review of 444 cases of early syphilis at Mount Sinai Hospital, New York, Chargin and Stone found rapid sterilization brought about by large doses at short intervals during the sero-negative period to yield the best results. They hold the prime factors in controlling the disease to be the dark-field examination and early intensive treatment.

Sudden changes in the reaction of a treated case may be expected according to Markowitz. There are variations in the complement-binding power of serum of untreated patients; tertiary cases often present the symptoms but give a negative reaction; sometimes nonluetetic persons give a positive reaction. Injection of alcohol may temporarily convert a positive reaction to a negative.

In the Navy Department, and perhaps elsewhere, the Kahn test has replaced the Wassermann test as a standard. This test determines the relative strength of syphilitic serums, which is expressed as "Kahn units."

The Vernes test depends on a flocculation reaction between the patient's serum and a preparation of heart muscle extract and ethylene chloride, the hemolysis being

determined by an optical instrument. This test is now in use in Europe and in America.

There are indications that the Hinton-Glycerol-Cholesterol test, with the Ferguson and Greenfield modifications, is somewhat more sensitive and reliable than the Kahn test, though more adapted to types of cases which the Wassermann technique does not cover, including controversial latent cases. Morton Smith says the Hinton test gives a smaller number of doubtful readings and becomes positive earlier than the Wassermann and at least as soon as the Kahn test.

The citochol test Gross thinks of no use in diagnosing syphilis in spinal fluid, but an improvement on other methods when applied to serums.

Ultraviolet rays cause complications in patients taking the arsenobenzol treatment, according to Richter. Myosalvarsan has given good results in latent syphilis.

Nicol reports that manic and grandiose types respond best to malaria treatment of general paralysis, about 50 per cent remitting. The largest group of simple dementing type yields only 12 per cent remissions. The stuporose type is rare and the paranoid type, also small, has a poor prognosis.

To reduce danger from malaria inoculation, Shellworth emphasizes: (1) Quick and final defervescence without recurrence; (2) Immediate reduction of the fever;

Typhoid vaccine is an ideal substitute for malaria though less efficient.

Bulbocapnine.—This is being tried in the treatment of tremor of true paralysis agitans and hemiplegia. Little benefit resulted from its use in post-encephalitic tremors. Kuttner found it useful in 7 cases of chorea minor, but without effect on the hypotonia, Hill of London reports good results from it in post-encephalitic behavior disorders during the period of administration only. 0.1 gm. a day is a dose and it may be given orally or subcutaneously.

Diagnostic methods.—Sedimentation of erythrocytes has attracted further attention, the rate being increased in acute infections, and also in some chronic ones, to a lesser degree. A high sedimentation rate has bad prognostic significance.

Public Health.—The Official Bulletin of the Chicago Medical Society of October 12, 1929, suggests, apropos of the popular demand for less costly hospitalization, that the Society cooperate with the Chicago Planning Commission and the Chicago Regional Planning Commission to learn the relation of supply of doctors and hospitals to neighborhoods. This would be to follow the method of public utilities, which can forecast population trends by reason of their surveys, and make their construction accordingly.

J. L. Pritchard, M. D., gives the United States as nineteenth among civilized countries in maternal mortality, and recommends better organization of obstetrical personnel and more efficient supervision.

Oliver Kamm, director of chemical research of the Parke, Davis Co., was awarded the prize of the American Association for the Advancement of Science for his thesis on the isolation of two hormones from the posterior lobe of the pituitary gland (pitochin and pitressin).

\$10,000 for the study of influenza has been appropriated by the Metropolitan Life Insurance Company.

Tularemia.—Cats may spread infection in this disease.

Narcosan for the treatment of drug addicts has not proven of value.

Deaths from Diabetes.—There has been an increase in deaths from this disease.

Hyperthyroidesia.—Dr. Russell M. Wilder, of the Mayo Clinic, in *Endocrinology*, May-June, 1929, p. 231, draws attention to hyperthyroidesia, which has become revealed by the study of the parathyroid glands by Hansen, Collip and others. From experience acquired, it would seem desirable to explore surgically for tumors of the parathyroid glands in case of skeletal decalcification of obscure cause, particularly if associated with hypercalcemia. If a tumor is found it should be removed, and if not, the removal of one or two parathyroid glands may be beneficial, though this may be followed by a precipitate lowering of calcium level in the blood. A case of osteitis fibrosa is described in which conditions attributable to excessive parathyroid activity occurred in association with a malignant parathyroid adenoma. To some extent the disease is combated by ultraviolet light and a diet rich in Vitamin D. Removal of tumor is followed by increased strength and calcification of bones, and relief of pain in bones.

Urine test.—A new test for albumin in urine is contributed by Chunilal Bose, of India, recommended for its "simplicity, delicacy and reliability." The reagent is a saturated solution of saccharin in water prepared by boiling saccharin in distilled water until no more saccharin is dissolved. When the solution cools it should be filtered and the clear solution preserved in a stopped phial. The test may be made in the same way as Heller's with nitric acid. The advantages claimed are that the new reagent (saccharine) does not precipitate mucin, urea, or urates unless the latter are in great excess.

Beriberi.—Prof. Dr. Matsumura, of the Chiba Imperial University, in making researches on the effect of poor nutrition on the bacilli in the intestine of animals, found that cocks and doves fed on polished rice had a special bacillus in the intestine. He cultivated this bacillus artificially, and it proved to be the cause of beri beri, by which disease the birds were attacked when weakened by poor nutrition. After many experiments he concluded that the bacillus might be found in the feces of patients with beri beri as well as of birds with the disease; that it might be found in the feces of healthy persons; that the test animals when infested with the bacillus would develop beri beri; that serum from patients as well as from animals with beri beri had a special coagulative action on the bacilli; therefore the examined bacillus can be considered to be the cause of beri beri as a result of a deficiency of Vitamin B. The professor has named the bacillus "Chiba beri beri bacillus." Dr. Kato, of the Kure Naval Hospital, experimented with cultures of bacillus given him by Dr. Matsumura and found that in 44 human cases examined the bacillus serum diluted 200 times retained its coagulative action. (*J. A. M. A.* 92; 665; Feb. 23, 1929.)

New Method of Roentgen Pelvimetry.—Thomas' latest device consists of a lead screen perforated all over with small holes a centimeter square, instead of the screen with the single row of holes. It forms a practical method, suitable for routine use as well as accurate measurement of the inlet. This should enable the obstetrician better to see the pelvis, and result in better obstetrics and better babies. (*J. A. M. A.* 92; 1515; May 4, 1929.)

Rickets.—Hess, Lewis and Rivkin, of New York, give further clinical and laboratory experiments with irradiated ergosterol (viosterol) as a therapeutic agent, both as a valuable prophylactic and curative in rickets and other conditions. (*J. A. M. A.* Aug. 31, 1929.)

Halogen salts of magnesium.—Dr. Pierre Delbet of Paris in a study covering years of biological activity of halogen salts of magnesium, claims they promote greater vitality of white corpuscles, increase resistance to infec-

tious and inefficiency diseases, and retard the development of malignity in cancer.

Scurvy.—This was produced in guinea pigs by feeding a scurvy-producing diet, in an experiment by H. Aron and colleagues (*Jahrb. f. Kinderh.* No. 1, 1929). A selected number of animals were fed a water extract of fresh liver prepared by pounding 60 gm. of liver in 60 c.c. of water. About 5 to 6 c.c. of this liver juice appeared to be equivalent to 7.5 gm. of fresh ox liver, and the daily administration of this amount of liver prevented scurvy in the pigs fed on the scorbutic diet. Heating the liver extract in boiling water did not affect its anti-scorbutic qualities. It is possible that some individuals would tolerate a water extract of liver better than fruit juice as a prophylactic agent.

Myeloid Leukemia.—Recio and Casas observe two phenomena which they say have not previously been reported, namely, the rapid disappearance of foreign elements from an animal's circulation when citrated blood from leukemic patients is injected into it, and the appearance of myeloblasts. The first phenomenon suggests, in their opinion, some hormone or leukopoietic stimulus which determines the hyperleukocytosis. The

latter diminishes for the first few weeks and disappears in the final stages of the disease. (*Revista Medicina y Cirugia of Habana* 33: 805; Nov. 30, 1928.)

Miscellaneous.—Convalescent serums for acute anterior poliomyelitis. . . . Also for measles and chicken pox. . . . Agglutination tests for undulant fever and tularemia in obscure fevers. . . . Compulsory inoculation in schools necessary to reduce diphtheria. . . . Increased attention to genito-urinary conditions necessary for general practitioner. . . . Stone in ureter, pyelitis often give symptoms of appendicitis. . . . Frequent electrocardiograms should be made during course of chorea. . . . More attention to posture in school children. . . . Detection of mild deafness in school children. . . . Proper hygiene for eyes of children to correct errors, especially myopia; diet important. . . . In time we may expect a campaign for immunization against scarlet fever. . . . Plasmochin useful in malaria but must be used cautiously. . . . Improvement in serums and antibody solutions for pneumonia are in evidence. . . . Focal infection in teeth frequent cause of eye inflammation. . . . Increased interest in geriatrics (diseases of old age) noted.

Progress in Surgery During 1929

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In looking over the literature for the past year, one finds that while there has been much progress in the art of surgery in general, it is more conspicuous in improvements of technic of existing operations rather than in the development of new ones. The progress is all the more real in that better diagnostic methods are in use which bring patients to the surgeon earlier when surgery is exercised more favorably, and also because a better appreciation of pre- and postoperative care of patients, as well as refinements of actual technic, have greatly bettered surgical results.

Surgery of the Brain and Cord, Head and Neck

A study by Eisenhart¹ of the operative results, past and present, following the treatment of intracranial tumors in the Peter Bent Brigham Hospital, Boston, shows a steady improvement despite the fact that more difficult and more radical operations are now being done. In 1922-3, the total mortality was 19.3 per cent and the operative mortality 14.27 per cent. In 1928-9 the corresponding figures were 12.6 and 9.7 per cent respectively. The figures quoted by Vincent, De Martel and David² are not so low but these authors find that the mortality following the operative removal of all types of cerebral tumors has fallen from 50 to 25 per cent. Unfortunately, many such tumors are still subjected to X-ray or prolonged specific treatment, although the rays only affect tumors of embryonal origin and only 2 per cent of brain tumors are syphilitic.

McLean³ describes a new transbuccal approach to the entire encephalon region by which he claims that mortality is reduced to 11 per cent as compared with 19 per cent by other methods.

Spasokukockij⁴ recommends repeated punctures in the treatment of chronic brain abscesses thereby avoiding the traumatism and other disadvantages of

trephining. Cushing and Bovie⁵ have found electrosurgery a great improvement in the operative treatment of brain tumors.

Schmeiden and Peiper⁶ extirpated a lipoma situated in the cervical cord, an intracervical tumor, with complete success.

Cushing⁷ reports that for the past two years he has been using electrosurgery in the removal of cerebral tumors. Altogether he has treated 547 tumors in this way with advantage in almost every case.

Domenici⁸ reports that in the past 20 years the mortality of spinal and spinal cord tumors operated has fallen from 50 to 8 per cent. In 218 cases of all types of intra- and extradural and medullary tumors, reported by this author, there were 17 per cent operative and 15 per cent late deaths. There were more than 65 per cent good results.

Simeoni⁹ at the last Italian Surgical Congress reported on a total of 1323 cases of cancer of the mouth. Forty-nine (49) per cent showed recovery persisting for 3 years and 17 per cent for 5 years. In cancer of the tongue 30 per cent survived operation for at least 3 years and 20 per cent for 5 years.

Trauner,¹⁰ in a case in which both condyloid processes had been lost, restored the width of the lower part of the face by a plastic operation on the lower jaw bone which included the insertion of a pediculated bone segment. The result was quite satisfactory.

Jurgens¹¹ has drawn attention to the dangers of infections of the upper lip and to the necessity for surgical precautions in treating lesions in this area. The anatomic dispositions here make the spreading of infection very easy and rapid.

In trachomatous and other affections of the eye, Denig¹² describes and recommends circumcorneal transplants of mucous membrane from the mouth.

Rudolf,¹³ in a patient who had had a gastrostomy performed for a complete stricture of the esophagus, did an esophagoplasty using parts of the cecum and ascending and transverse colons. The procedure occupied one and one-half years but the result was quite satisfactory.

Seiffert¹⁴ in a case in which the esophagus was accidentally perforated, with a resulting mediastinal abscess, enlarged the breach for the entire length of the abscess and fed the patient with a tube. The patient recovered; the case shows that perforation of the esophagus is not hopeless and that mediastinotomy is not indicated in every case.

Thoracic Surgery

Cutler and Beck¹⁵ add two to the previously reported ten cases of operation for chronic valvular disease of the heart. These authors believe that a gradual transformation of a stenotic valve to a valve of the insufficient type is more successful than a sudden change. Their operative method consists of the excision of a segment of the stenotic valve with the cardiovalvulotome designed by themselves. One of their two operated patients died.

Graham¹⁶ reports two cases in which operations were performed with the deliberate purpose of decompressing the heart in order to remove the destructive effects of pressure by the bony and cartilaginous structures in the thorax or scar tissue in the pericardium. There is a record of a similar operation performed in 1907 in England, but surgeons have not adopted the procedure. In both of Graham's cases, there was marked subjective and objective improvement, but both patients died from other causes, some time following operation.

Several reports appear in the literature regarding the removal or prevention of pericardial adhesions. Rouslacroix¹⁷ reports 5 cases in which a precordial thoracotomy was done. Three patients survived; one for 5 years. The operation gives excellent results when the patients are not attacked with serious concomitant disease. Shipley and Horine¹⁸ suggest that for the relief of the condition, the sternum should be trephined and small openings made in the pericardium. Ochsner and Hermann¹⁹ suggest the introduction of vegetable digestants of the adhesions following pericardiectomy.

Mixter²⁰ and White report that in 4 cases of severe angina pectoris treated by alcohol injections into the posterior roots of the first five thoracic nerves, 3 of the patients have had practically complete relief for 6 to 14 months. Other authors have reported excellent results following partial or total sympathectomy, especially resection of the upper and middle ganglia.

Several operative procedures are recommended by different authors for the relief of asthma. Regarding these an editorial in the *Journal of the Amer. Med. Assn.*²¹ says that: "From the present ignorance, one gains the conviction that any wholesale introduction of operative treatment for asthma does not have any justification and leads to undesirable disappointment. Removal of obvious foci and nasal obstructions as well as the establishment of proper drainage are procedures that are justified regardless of any special disease or disability of a patient."

Further contributions to the etiology of post-operative pulmonary abscess are made by Cutter²² and Hedblom and associates²³ following experimental work. Cutter finds that such an abscess can be produced following the lodgment of an infected embolus in the lung tissue. Hedblom finds that an abscess can be produced if the cough reflex is sufficiently controlled to allow infected

material to settle in the alveoli. The findings are important in connection with operations within the oral cavity, especially tonsillectomy. Edel²⁴ claims good results in such suppurations, from intrathoracic injections of neosalvarsan. Coquelet²⁵ modifies Graham's method of cautery lobectomy, by cutting successive wedges of the lobe at monthly intervals—an operation which he terms progressive cuneo-pneumectomy. Pneumonitis and protein intoxication are avoided and the method does not require the mobilization of more than a portion of the usually densely adherent lobe at a time.

At the recent French Congress of Surgeons (Oct., 1929), Bérard and Lardennois²⁶ reported that great progress is being made in the surgical treatment of pulmonary tuberculosis. In a large series of advanced cases treated by thoracotomy, positive results were obtained in nearly 50 per cent and 41 per cent of the cases treated by phrenicotomy gave positive results. Bérard and Guilleminet²⁷ state that thoracotomy gives very good results in the open empyema of tuberculosis and Zadeck and Sonnenfeld²⁸ report good results in young tuberculous children from surgical treatment.

A new method of performing extrapleural thoracoplasty is reported by Mallet-Guy and Desjacques.²⁹ They resect the two first ribs, approaching them by the postero-external route above the clavicle.

Haines and Boothby³⁰ from a study of the serious reactions following partial thyroidectomy find that post-operative oxygen treatment has definitely lowered mortality from such complications during the past few years.

Abdominal Surgery Including Digestive Tract

Bager³¹ has collected 1,767 cases of perforated gastro-duodenal ulcer from Swedish hospitals. The global mortality of the operated cases was 32.8 per cent. As already well known, the mortality rapidly increases with the age of the perforation. About two-thirds of the perforations were in the stomach; one-third in the duodenum. Simple suture gave 36.4 per cent mortality; simple suture with gastro-enterostomy 23.4 per cent mortality; resection 25 per cent and tamponing with drainage 68.5 per cent. In Key's hospital at Stockholm, for the past 10 to 15 years, there has been an adoption of the uniform method of longitudinal excision of the ulcer with transverse suture, lavage of the abdominal cavity, gastrostomy and reunion by first intention. The post-operative mortality has been only 11.5 per cent and no patient was lost when operated within 6 hours of perforation. Gastro-enterostomy gave the best results.

In the treatment of gastro-duodenal ulcers, Connell³² thinks that the present surgical methods are unsatisfactory and recommends a subtotal gastrectomy. Present methods of gastrectomy remove the antro-pyloro-duodenal area and allow part of the acid-secreting area—the fundus—to remain. Fundusctomy, removal of the fundus portion, is suggested, and the antro-pyloro-duodenal part should be allowed to remain. It is an easier and less dangerous operation.

In making a gastro-jejunostomy, following a partial gastric resection, instead of the usual longitudinal incision, Moise³³ makes a transverse jejunal incision which he claims gives a far better anastomotic and functional result.

Cholecystography following the Graham radiographic procedure was followed in 412 cases by Garcin³⁴. In 346 cases the gall-bladder was visible; in 19 cases it could not be seen but calculi could be seen; in 45 cases neither the gall-bladder nor its contents could be seen. The oral route of administration of the opaque medium was alone used and in the great majority of cases the dose was well tolerated.

Walton³⁵ describes a new plastic operation for reconstruction of the common bile duct in which a pediculated flap is cut in the anterior duodenum and the opening then partly closed, leaving an orifice into which the severed common duct discharges when the turned-over flap is sutured to it and around the anterior wall of the duodenum, thus forming a continuation of the duct.

Cheevers³⁶ describes a method of instrumental dilatation of Vater's papilla and the dislodgement of biliary calculi by retrograde irrigation. The dilatation is done with graduated bougies and catheters, passed through the common duct until the tip is felt to slip through the lumen of the papilla. Its complete passage is confirmed by the injection of a sterile sodium chloride solution; when the fenestrated portion of the catheter has passed beyond the papilla, the solution fails to flow back. Retrograde irrigation dislodges calculi and debris from Vater's ampulla and floats them up to the incision made in the supraduodenal part of the duct. Williams and Smithwick³⁷ report a case in which an external biliary fistula was anastomosed directly to the first portion of the duodenum; the patient is still living and well. In operations on the bile ducts, Petermann³⁸ recommends and practices closure of the abdomen without drainage. In 680 cases thus operated, which have been followed, 85 per cent of the patients have been symptom-free and 10 per cent had very mild post-operative symptoms, results which are far superior to those following operations with drainage.

In an experimental animal study of cholecysto-gastrostomy, Beaver³⁹ has shown that union of the gall-bladder with the stomach following double ligation and division of the common duct has no effect on the acidity of the stomach contents but that such union is always followed by infection of the liver and bile passages.

Quain⁴⁰ reports that appendicitis is often the diagnosis when the trouble is hypermobility of the right colon. In 300 cases of apparently chronic appendicitis presenting the usual symptoms a right colon fixation was done. Of 96 patients followed there was a complete cessation of the appendiceal symptoms in 84. The colon fixation is made by sutures passed through the posterior peritoneum to the psoas major muscle. In these cases, the supposed appendiceal pain is really due to the hypermobile colon.

The usual method of dealing with cecum mobile is to reflex it in a good position, but there is always a great chance of recurrence owing to the dragging due to the weight of the cecal contents. Plèri⁴¹ has devised a new technic which he terms ceco-sigmoidean-resection-anastomosis. This consists in a wide resection of the cecum (with the appendix) and its termino-lateral insertion in the sigmoid the wall of which is also resected at the site of the anastomosis. The anastomosis is made in the lower part of the sigmoid at the promontory. The operation has been done 14 times with good results observed for 3 years.

Bessieux⁴² reports the results of 250 appendectomies with catgut ligation and thermocauterization of the base of the appendix, the stump being left free and not buried. No complications were observed.

In a case of ileus following an operation for peritonitis, Babcock⁴³ performed an enterostomy through the vagina. He thinks that a cul-de-sac incision allows exploration of the pelvic peritoneum and drainage of the obstructed loop of bowel with little or no shock.

Partipilo⁴⁴ describes a new closed, aseptic and rapid method of gastro-intestinal anastomosis using a newly devised forceps which abolishes the possibility of spilling the visceral contents. The procedure is applicable

to any type of anastomosis except after wide resection of the stomach.

Bonafé considers laparotomy and radical intestinal resection justified when intestinal tuberculosis is present with advanced pulmonary tuberculosis. Of 17 patients operated 9 recovered and 3 were notably improved. All these patients were in danger of death. The operation in no case aggravated the pulmonary condition.

Several reports have appeared in recent literature regarding the efficacy of intravenous injections of hypertonic (20%) salt solutions in cases of intestinal occlusion. The injected fluid replaces diminished chlorides and combats dehydration. Gosset⁴⁵ found this procedure successful in 3 cases. Bialle, de Langibaudière and Le-Van-Mieng⁴⁷ got very satisfactory results in cases of spasmodic post-operative occlusion.

Heineck⁴⁸ has called attention to the increasing incidence of traumatic rupture of the spleen due to automobile accidents. Splenectomy is the operation of choice in cases of this nature. Three (3) personal cases are reported. There is no pathognomonic sign for arriving at a diagnosis prior to operation except perhaps a shifting of the area of dullness when the position of the patient is changed from one side to the other—left-sided dullness being constant, right-sided dullness present only when patient lies on right side.

Oughterson⁴⁹ describes a new method of utilizing the hypertrophied fascia (which is commonly considered a useless structure and partly excised in ordinary repair methods or left as a bulky mass in the scrotum) in the repair of large scrotal hernias. It is used in strips.

Wreden⁵⁰ constructed a voluntary sphincter ani by using strips of the fascia of the glutens maximus muscles threaded through an incision made behind the tuberosities of the ischii. The operation was successful. Stone⁵¹ reports a somewhat similar procedure.

In order to give relief from the persistent itch of pruritus ani and give the patient sleep, Montague⁵² does an under-cutting operation, which consists in severing the sensory nerves immediately underneath the skin in the perianal region, and which is performed by a special pair of double-edged scissors. Sclerosing injections have been used satisfactorily in the treatment of hemorrhoids by a number of surgeons and Bellot⁵³ reports a series of 250 cases so treated.

Following the high extirpation of recto-sigmoid cancer, Pauchet⁵⁴ has seen two patients who survived 2 years and one who survived 8 years. He thinks that in supra-ampular cancer, Kraske's sacral operation is indicated. It has been found that when the sigmoid stump cannot be brought down to the anus, it can be fixed provisionally to the sacral wound. The patient's later efforts to defecate will cause a sigmoid prolapse and in due time the sigmoid can be fully brought down.

Surgery of the Urinary Organs

McKenna⁵⁵ reports some experiments in ureteral transplantation in dogs. He shows that the reason why this operation has generally failed is not due to the surgical technic but to failure in drawing the ureter sufficiently far into the lumen of the bowel, and to the fact that there is too much tension on the ureter, the result being a suppuration at the site of implantation into the bowel, and hence an ascending infection to the kidney producing an acute pyelitis and general peritonitis. Good results were obtained when these errors were avoided. Coffee⁵⁶ in studying the advances made in ureteral transplantation into the large bowel states that now, for the first time, he feels justified in recommending this operation for general use by the skilled surgeon

in conditions in which it is necessary to dispense with the bladder as a reservoir for urine.

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Walton³⁵ describes a new plastic operation for reconstruction of the common bile duct in which a pediculated flap is cut in the anterior duodenum and the opening then partly closed, leaving an orifice into which the severed common duct discharges when the turned-over flap is sutured to it and around the anterior wall of the duodenum, thus forming a continuation of the duct.

Cheevers³⁶ describes a method of instrumental dilatation of Vater's papilla and the dislodgement of biliary calculi by retrograde irrigation. The dilatation is done with graduated bougies and catheters, passed through the common duct until the tip is felt to slip through the lumen of the papilla. Its complete passage is confirmed by the injection of a sterile sodium chloride solution; when the fenestrated portion of the catheter has passed beyond the papilla, the solution fails to flow back. Retrograde irrigation dislodges calculi and debris from Vater's ampulla and floats them up to the incision made in the supraduodenal part of the duct. Williams and Smithwick³⁷ report a case in which an external biliary fistula was anastomosed directly to the first portion of the duodenum; the patient is still living and well. In operations on the bile ducts, Petermann³⁸ recommends and practices closure of the abdomen without drainage. In 680 cases thus operated, which have been followed, 85 per cent of the patients have been symptom-free and 10 per cent had very mild post-operative symptoms, results which are far superior to those following operations with drainage.

In an experimental animal study of cholecysto-gastrostomy, Beaver³⁹ has shown that union of the gall-bladder with the stomach following double ligation and division of the common duct has no effect on the acidity of the stomach contents but that such union is always followed by infection of the liver and bile passages.

Quain⁴⁰ reports that appendicitis is often the diagnosis when the trouble is hypermobility of the right colon. In 300 cases of apparently chronic appendicitis presenting the usual symptoms a right colon fixation was done. Of 96 patients followed there was a complete cessation of the appendiceal symptoms in 84. The colon fixation is made by sutures passed through the posterior peritoneum to the psoas major muscle. In these cases, the supposed appendiceal pain is really due to the hypermobile colon.

The usual method of dealing with cecum mobile is to reflex it in a good position, but there is always a great chance of recurrence owing to the dragging due to the weight of the cecal contents. Plèri⁴¹ has devised a new technic which he terms ceco-sigmoidean-resection-anastomosis. This consists in a wide resection of the cecum (with the appendix) and its termino-lateral insertion in the sigmoid the wall of which is also resected at the site of the anastomosis. The anastomosis is made in the lower part of the sigmoid at the promontory. The operation has been done 14 times with good results observed for 3 years.

Bessieux⁴² reports the results of 250 appendectomies with catgut ligation and thermocauterization of the base of the appendix, the stump being left free and not buried. No complications were observed.

In a case of ileus following an operation for peritonitis, Babcock⁴³ performed an enterostomy through the vagina. He thinks that a cul-de-sac incision allows exploration of the pelvic peritoneum and drainage of the obstructed loop of bowel with little or no shock.

Partipilo⁴⁴ describes a new closed, aseptic and rapid method of gastro-intestinal anastomosis using a newly devised forceps which abolishes the possibility of spilling the visceral contents. The procedure is applicable

to any type of anastomosis except after wide resection of the stomach.

Bonafé considers laparotomy and radical intestinal resection justified when intestinal tuberculosis is present with advanced pulmonary tuberculosis. Of 17 patients operated 9 recovered and 3 were notably improved. All these patients were in danger of death. The operation in no case aggravated the pulmonary condition.

Several reports have appeared in recent literature regarding the efficacy of intravenous injections of hypertonic (20%) salt solutions in cases of intestinal occlusion. The injected fluid replaces diminished chlorides and combats dehydration. Gosset⁴⁵ found this procedure successful in 3 cases. Bialle, de Langibaudière and Le-Van-Mieng⁴⁷ got very satisfactory results in cases of spasmodic post-operative occlusion.

Heineck⁴⁸ has called attention to the increasing incidence of traumatic rupture of the spleen due to automobile accidents. Splenectomy is the operation of choice in cases of this nature. Three (3) personal cases are reported. There is no pathognomonic sign for arriving at a diagnosis prior to operation except perhaps a shifting of the area of dullness when the position of the patient is changed from one side to the other—left-sided dullness being constant, right-sided dullness present only when patient lies on right side.

Oughterson⁴⁹ describes a new method of utilizing the hypertrophied fascia (which is commonly considered a useless structure and partly excised in ordinary repair methods or left as a bulky mass in the scrotum) in the repair of large scrotal hernias. It is used in strips.

Wreden⁵⁰ constructed a voluntary sphincter ani by using strips of the fascia of the glutens maximus muscles threaded through an incision made behind the tuberosities of the ischii. The operation was successful. Stone⁵¹ reports a somewhat similar procedure.

In order to give relief from the persistent itch of pruritus ani and give the patient sleep, Montague⁵² does an under-cutting operation, which consists in severing the sensory nerves immediately underneath the skin in the perianal region, and which is performed by a special pair of double-edged scissors. Sclerosing injections have been used satisfactorily in the treatment of hemorrhoids by a number of surgeons and Bellot⁵³ reports a series of 250 cases so treated.

Following the high extirpation of recto-sigmoid cancer, Pauchet⁵⁴ has seen two patients who survived 2 years and one who survived 8 years. He thinks that in supra-ampular cancer, Kraske's sacral operation is indicated. It has been found that when the sigmoid stump cannot be brought down to the anus, it can be fixed provisionally to the sacral wound. The patient's later efforts to defecate will cause a sigmoid prolapse and in due time the sigmoid can be fully brought down.

Surgery of the Urinary Organs

McKenna⁵⁵ reports some experiments in ureteral transplantation in dogs. He shows that the reason why this operation has generally failed is not due to the surgical technic but to failure in drawing the ureter sufficiently far into the lumen of the bowel, and to the fact that there is too much tension on the ureter, the result being a suppurative at the site of implantation into the bowel, and hence an ascending infection to the kidney producing an acute pyelitis and general peritonitis. Good results were obtained when these errors were avoided. Coffee⁵⁶ in studying the advances made in ureteral transplantation into the large bowel states that now, for the first time, he feels justified in recommending this operation for general use by the skilled surgeon

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fuse the last two lumbar vertebrae to the sacrum, but the extent of this fusion must be determined by the particular case.

McWhorter⁷⁶ describes a new operative technic for osteomyelitis of the ischium and pubis. A transverse incision is made extending from the middle of the gracilis muscle to the middle of the adductor magnus muscle. The adductor muscle is split. By the splitting of the external obturator fascia and muscle fibers, which cover a large part of the rami of the pubis and ischium, the obturator fossa may be entered and the two bones examined or operated upon. This method has been found satisfactory in practice.

Lamy⁷⁷ shows that gonococcal coxitis is a well defined pathologic entity. He has collected 180 cases from the literature and reports 11 other cases. The history of a gonorrhea is essential and should be persistently searched for. The only means of successful dealing with this condition is by continuous extension associated or not with plaster immobilization.

Bailey⁷⁸ has successfully treated 2 cases of Volkmann's ischemic contraction by transplantation of the internal epicondyle. Moulouguet and Seneque⁷⁹ treat it by incisions of the epitrochlear muscles, relieving intra-aneurotic hypertension.

In selected cases of polyarticular and monarticular arthritis, Allison and Coonse⁸⁰ found that 65 per cent of the cases were markedly improved by a synovectomy of the knee joint.

Surgery of the Nerves, Vascular and Lymphatic System

Many reports continue to appear in the literature dealing with the advantages of nerve section for the relief of painful and other conditions. Dandy⁸¹ gives a new method—partial section of the sensory root at the pons—for tic douloureux. A suboccipital approach to the roots of the trigeminal nerves was employed in 88 cases. Grant⁸² also sections the fifth nerve and for pain in the neck region sections the upper three or four posterior nerve roots. For asthma, Goebell⁸³ finds that the operation of choice is bilateral sympathectomy with section of the right pneumogastric. This has given 43 per cent of recoveries and 18 per cent improvements. When the result is positive, it is claimed that it is definite. Carvalho and Lacerda⁸⁴ have employed phrenicectomy successfully in 12 cases of lung lesions including suppurative hydatid cyst of lung.

In gynecologic lesions, Guyot⁸⁵ has found resection of the presacral nerve satisfactory in about 50 per cent of the cases. Cucille⁸⁶ finds that resection of this nerve is indicated: (a) as a complementary operation in painful organic lesions when the main operation while assuring an anatomic recovery does not completely suppress pain; (b) in severe and rebellious painful syndromes (pelvic neuralgia) unaccompanied by organic lesions; (c) in the case of inoperable malignant neoplasms; and (d) with a Wertheim hysterectomy. For painful dysmenorrhea Fox⁸⁷ resects the superior hypogastric plexus.

Leriche⁸⁸ did a posterior radicotomy or ramisection in 9 cases of Little's disease with success in all. Although American surgeons generally prefer Stöffel's operation, Leriche thinks radicotomy or ramisection is always preferable.

Farrar⁸⁹ draws attention to the great advantage of auto blood transfusion in operations entailing very severe hemorrhage, especially in emergency cases such as ruptured tubal pregnancy. The technic necessitates trained teamwork and must be carried out independently of the operation itself. The blood is removed by suc-

tion from the field of operation and reinjected intravenously. Cole and Montgomery⁹⁰ on the basis of 237 cases find that intraperitoneal blood transfusions are of great value in cases of secondary anemia associated with infectious disease where there is no intraabdominal disease.

McClintic⁹¹ reports successful treatment of trophic ulcers of the lower extremity by alcoholic injection of the blood vessels. The femoral artery is exposed in the lower two-thirds of Scarpa's triangle and from 1 to 2 c.c. of 95 per cent alcohol is injected into the nerve-bearing tissue of the artery until the vessel is completely encircled by an alcoholized ring. The effect is claimed to be better than that obtained by sympathectomy.

A number of reports appear in the literature in regard to the injection method of treating varicose veins. The mode of action is by an artificial thrombophlebitis, which results from an inflammatory and injurious action on the intima of the vein wall by the sclerosing substance injected, followed by fibrosis and obliteration of the lumen of the vessel. During the present year the principal reports have been made by McPheeters⁹² and Kern and Angle⁹³, the latter authors reporting 154 cases. Preston⁹⁴ has extended this method to the treatment of aneurisms.

Lerche⁹⁵ reports a severe case of Hodgkin's disease in an adult completely cured and followed without recurrence for 18 years. The operation consisted of removal of supraclavicular nodes, and of a large mediastinal mass.

Wound Healing

Howes and associates⁹⁶ carried out numerous experiments to determine the nature of the process of wound healing. They found that during the "lag" period, i.e., the first 4 to 6 days, the strength of the wound must be artificially reinforced by sutures. The rapid ascent of the curve of wound strength from the 6th to 10th day—the period of fibroplasia—has great practical significance as regards the type of suture of fascia and muscles and the stress placed on the wound edges. Hertzer⁹⁷ states that wound healing primarily occurs by the coagulation of exudates forming a fibrillar fibrin which is converted into connective tissue by a chemical process. Wound healing is prevented when the exudate forms a granular fibrin. This may be due to infection or the presence of some inimical chemical. Muscle heals by the production of a myositis and fibrous tissue.

Sarnoff⁹⁸ describes a new combined superficial and deep continuous suture—a new hemostatic and proper approximation of wound edges—which is really a combination of a continuous approximation and a relaxation suture without using any additional material. In 300 cases in which this was employed all healed by primary union.

In connection with wounds, the new absorbable tampon Vivocol devised by Feriz⁹⁹ should be mentioned. It consists of centrifugalized beef blood plasma, sodium citrate and chinolin. On injection into a wound, it coagulates at once and is quickly absorbed.

Electrosurgery

Electrosurgery is making rapid strides as its advantages are becoming more manifest. In the United States, Kelly¹⁰⁰ has been one of its foremost protagonists. He points out that this method destroys tumors *in situ* by necrobiosis, prevents hemorrhage, and obviates the use of ligatures and the handling of tissues; the field of operation is reduced, complications are lessened and there is no interference with primary union. Recurrences of malignancy are easily dealt with. Kelly says that: "The preparations for an electrosurgical operation, surrounded

by all the necessary precautions for securing and maintaining a well-sterilized wound, are often not so extensive and time consuming as for an average general surgical procedure, nor does this newer procedure entail the anxious after care or anticipation of disagreeable sequelae." Kime¹⁰¹ points out that electrosurgery is especially valuable in premalignant and malignant conditions; it is quickly performed and may be done under local or regional anesthesia; postoperative pain and shock are absent; the blood loss is slight and there is no scar. Heitz-Boyer¹⁰² shows that with this method there is a primary hemostasis of the small vessels and a secondary hemostasis by coagulating products set free in the circulation by the alteration of cells by the high-frequency current. Walker¹⁰³ shows the advantages of electrosurgery in circumcision.

Anesthesia

Cotte¹⁰⁴ reports that in 2207 cases operated under spinal anesthesia—mostly abdominal and gynecologic operations—there were only 2 deaths apparently due to the anesthetic. The mortality from bronchopneumonia following spinal anesthesia is practically nil. The injection of camphorated oil into the veins, immediately following the spinal injection, prevents syncope. Babini¹⁰⁵ in 1000 operations under spinal anesthesia had only 1 death due to it. There were only 13 cases in which the anesthesia was not satisfactory.

Henline¹⁰⁶ points out the advantages of paravertebral anesthesia in cases in which the function of the kidney is so deficient as to render the risk of general anesthesia very great. He injects the posterior roots of the spinal nerves with procaine at their exit from the spinal column.

Cahen¹⁰⁷ mentions a new method of anesthetizing the limbs by introducing a novocaine solution into the limb veins from which the blood is first excluded by an Esmarch band.

Mayer¹⁰⁸ thinks that while the recently introduced method of anesthesia by intravenous injections of alcohol has given many successes yet it is not free from danger. He reports 2 fatalities which autopsy showed to be clearly due to alcoholic pulmonary congestion.

Link¹⁰⁹ and others call attention to the value of sodium amytal as a general anesthetic. It is claimed that with its use there is neither postoperative vomiting nor shock and that it is ideal in brain and lung surgery.

Aids to Surgical Diagnosis

Case¹¹⁰ reports that Graham's method of cholecystography, with tetraiodophenolphthalein injected intravenously, was successful and verified at operation in 90 per cent of cases. Charbonnel and Massé¹¹¹ report 4 cases of arteriography of the limbs with injections of sodium iodide. The main arteries with collaterals are designated by radiography. Fraser¹¹² demonstrates the value of lipiodol injections in paranasal sinus conditions. Lamas and Fuentes¹¹³ report a method for the diagnosis of intragastric tumors by pneumogastrography. The patient swallows a duodenal tube. Air is injected and a roentgenogram made immediately. The Gastro-Photator, a new method for photographing the interior of the stomach, was described at the recent Congress of American Surgeons.

Miscellaneous

Randall, of the Mayo Clinic,¹¹⁴ draws attention to the value of acacia solution in sodium chloride solution injected intravenously in cases of shock with hemorrhage. Anderson and Rockwood¹¹⁵ report that in a series of 90 patients with low blood chloride associated with

acute abdominal lesions, the treatment with hypertonic salt solution reduced the operative mortality by more than one-half. Beckman¹¹⁶ in 114 cases of severe burns found that treatment with tannic acid reduced the deaths from toxemia to 5.3 per cent as compared with 17.8 per cent by other methods.

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Urology in 1929

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Urology during the last twelve months has lived up to its traditions of accomplishments in the past and up to its forecasts of the future as an integral specialty apart from all other operative fields. The best articles have this year concerned chiefly the upper urinary system and not the lower as embodied in the sexual organs, although stricture and cancer of the male urethra are reported. The following subjects are well represented by special contributions prepared for the reader in complete abstracts: diagnosis, urethra, prostate, bladder, ureter and renal pelvis, functional tests and kidney diseases. The importance of the urinary syndrome in children is discussed in several learned studies which will repay scrutiny and memory.

Symptomatology and Diagnosis

INTRAVENOUS PYELOGRAPHY.—Dr. A. Roseno of Cologne has written several articles on this subject, including his paper read before the German Congress of Urology in 1928. The most recent of these to date appears in the *Klinische Wochenschrift* for June 18 and deals with the clinical aspect. The method consists in injecting intravenously a large amount of urea in combination with iodine. A röntgen plate is then made as the substance injected is being eliminated by the kidneys and the uropoietic system appears in a manner previously unattained; which makes possible an entirely new symptomatology of this system. The old retrograde methods involve filling potential cavities with fluid or gas which from the beginning tends to distort the natural relations and is unphysiological to say the least. Moreover in all obstructive conditions of the passages these retrograde methods are at a disadvantage. To anticipate the possibility of iodine idiosyncrasy the patient is tried out beforehand merely by painting the skin; when if no erythema develop an idiosyncrasy may be excluded. Two conditions, thyrotoxicosis and active pulmonary tuberculosis, furnish contraindications to the method. During the injection the bladder should be full. Infusion into the veins should occupy 5 to 15 minutes, after which an exposure is at once made, followed in 3 hours by another with a third 5 hours later. Here it should be emphasized that in addition to ordinary visibility we have in this method a röntgen resource for measuring the comparative excretory capacity of the two kidneys. This should be of great value in the various obstructive conditions. There is an inherent difficulty in bringing out the normal kidney pelvis in the retrograde methods which is now obviated by the physiological method. Conditions are the reverse of those in cholecystography where the normal gall-bladder gives a characteristic picture. At present a plate made immediately will, when compared with one made 5 hours later,

give us the best idea of the normal kidney pelvis.

THE SUBINGUINAL SYNDROME OF URINARY COLIC.—M. F. Campbell wrote an article published in the *Journal of the American Medical Association* for April 20 with the title "Viscero-sensory Phenomena in Acute Obstruction of the Upper Urinary Tract." The sub-inguinal syndrome of ureteral colic—a term used in the absence of definite knowledge of its nature—may be clinically recognized and elicited as follows. The author refers naturally only to male subjects. Inspection reveals elevation of the testicle with wrinkling of the scrotum on the affected side. Palpation reveals unusual sensitiveness of the same testicle with slight elevation of the surface temperature in the adjacent angle of the thigh. An erythema may also appear in the upper inner thigh triangle and dermatographia can usually be demonstrated. The skin is hyperesthetic to coarse handling and the skin is also apt to be supersensitive to heat and cold. The opposite side of the body will serve to check up the reality of these symptoms. The syndrome will be found indicative of obstruction of the upper tract unless too much time has elapsed since the acute onset. Then a negative result does not exclude upper tract obstruction. The author gives a table of 40 personal cases with full documentation although this is far from the total observed by him for elsewhere he speaks of 85 cases studied by him. In these 40 cases the skin signs were positive without exception. In at least 27 of this number stone was present as a cause or complication. In other cases the obstruction was due to a ureteral malformation, kink, stricture, renal prolapse, etc. The great majority of the patients showed an infected hydronephrosis; and so constant was this condition that the material might be classed under that head in place of ureteral colic.

CHRONIC PYURIA IN INFANCY AND CHILDHOOD.—M. F. Campbell (*Medical Journal and Record*, July 17) points out the great frequency of pyuria in early life and the tendency to attribute this alteration to acute or chronic pyelitis. In more than 95 per cent of so-called chronic pyelitis which has not yielded to proper treatment a complete urological examination will show faulty drainage accompanied by obstructive or neurogenic stasis. In such cases antiseptics are of great value but do not of themselves prove curative. Persistence of faulty drainage may end in infection and renal damage of severe type. Neuromuscular urinary tract disturbances are a frequent cause of chronic pyuria and lead to an erroneous diagnosis of chronic pyelitis. These comprise spasm of the vesical neck causing retention and a subsequent paresis with incontinence, atony of the ureter with dilatation, etc. The pyuria may possibly be of genital origin and again a wrong diagnosis of

chronic pyelitis may be made. Children usually withstand a urological examination admirably and when properly performed this will convince the medical man that isolated chronic pyelitis limited to the renal pelvis does not exist. Pus proceeding from the upper tract is mostly of parenchymatous renal origin; and irrespective of upper tract involvement, which may be slight, one must look for obstruction in the lower tract. Among possibilities are tight prepuce, tight meatus, congenital stricture of the urethra, valve formation in the posterior urethra, congenital contraction of the bladder outlet, congenital obstruction of the ureter, compression of the ureter from without and so on.

PYURIA.—Prof. R. Fischl of Prague gives a brief account of this subject in the *Deutsche med. Wochenschrift* for Aug. 9, 1929. He limits his study to pyuria in childhood. When a child ails the chances are that the physician in seeking a diagnosis will not think of looking for pyuria and as a matter of fact these cases are often diagnosticated as typhoid. It is of course especially in little girls that we must think of pyuria. In one case in a 6 year old girl there was some temperature rise yet the child seemed well. The family physician suspected typhoid and had found moderate albuminuria. The microscope showed pyuria and the case cleared up under the proper regimen. In another case in a girl of 4 with temperature there was also a suspicion of typhoid and the child had been placed on liquid diet. The urine had not been examined although the chamber pot containing it gave off a foul smell. The case proved to be a pyelonephritis and ended fatally after 18 months despite all treatment. A third suspect of typhoid aged 10 presented typhoid stools, enlarged spleen, fissured lips, etc., but the case again proved to be one of pyuria and under proper treatment she was well in a short time. The author assumes that in these pyurias we have to deal with an ascending infection because of the great predominance in girls. Cases in boys are rare but the author has seen one in a boy of 5 who also suffered from enuresis. Treatment in these cases consists in bland diet and urotropin only. Surprising is the fact that the author, evidently a pediatrician, does not even allude to the use of the cystoscope in the diagnosis of such cases, evidently assuming that they must be bilateral.

BORDERLINE UROLOGICAL CASES.—Moro read a paper on this subject before the Styrian Medical Society at Gratz in May (*Münchener med. Wochenschrift*, June 21). There are two types, in one of which diseases of the urinary tract cause symptoms in other systems and the opposite one in which outside conditions cause symptoms referable to the urinary organs. Thus a case of suspected insipid diabetes turned out to be an enlarged prostate with residual urine and back pressure and renal insufficiency which gave rise to the extreme thirst and polyuria. Again prostatectomy in a diabetic was followed by urinary incontinence but this ceased promptly under the diabetic diet. A woman had tubercle bacilli in her urine and spontaneous pains in the right flank. A provisional diagnosis of right tuberculous kidney gave way under bimanual palpation and it was found that the symptoms were due to an adhesive pleurisy. This opinion was confirmed by the roöntgen examination while cystoscopy showed that it was the left kidney which was tuberculous. In urinary symptoms in women we should always look for displacements of the genitals. Infections like angina and gripe not infrequently cause a metastatic prostatitis with severe urinary symptoms

(metastatic renal abscess on the contrary is sometimes silent). Metastatic abscess on the anterior surface of the kidney may simulate peritonitis. Beginning epididymitis and funiculitis often simulate appendicitis. Injuries to the spine have been followed by renal calculosis while conversely painful affections of the spine have been mistaken for calculi. In bladder disturbances suspect some affection of the central nervous system, while organic bladder trouble may be associated with nervous disorders and cystitis is often followed by nervous manifestations. Chemical and instrumental tests are often made as a result of incomplete diagnosis.

Urethra and Prostate

ROENTGEN DIAGNOSIS OF STRICTURE OF THE URETHRA.—H. Puhl read a paper on this subject before the Kiel Medical Society, session of July 11 (reported in the *Münchener medizinische Wochenschrift* for Aug. 16). He gave the technic devised by himself and characteristic images of the anterior urethra and the act of micturition in the normal subject. As contrast media he used iodipin and umbrenal. Pathological processes are as a rule perceptible even in their inception. Findings include benign and malignant hypertrophy of the prostate, foreign bodies, diverticles and anomalies of development. Paralysis of the bladder as well as pareses of individual muscles are recognizable and it may be possible to distinguish between organic and functional paralysis. Of especial interest are the roöntgenograms of strictures of the urethra which are always anterior and which readily fall under four heads. In the posterior urethra, on the other hand, we find loss of elasticity of the wall as a result of inflammatory infiltration. The ducts of Cowper and the prostatic gland, the vesicles, and large cavity formation in the vicinity of the posterior urethra are often made visible in the plates; generally as a result of abscess formation which can lead to inflammation of these appendages. In all such cases a roöntgen plate of the urethra is now indispensable. Conditions in the anterior urethra differ radically from the preceding.

CARCINOMA OF THE URETHRA IN THE MALE.—E. M. Watson (*Jl. Urology*, Feb. xxi, p. 217.) reports two cases from the State Cancer Institution of Buffalo. He makes no attempt to collect and analyze the entire material which has not been done since 1907, when Preiswerk published notes of 42 cases of which two were personal. Nine articles are mentioned as published since that year with one or two case reports per paper. Nothing definite is known of the etiology for it seems as natural for a case to develop in a normal as in a diseased urethra. When some other lesion has preexisted diagnosis is the more difficult and early recognition is seldom possible in any case. The disease may appear at any portion whatever of the canal and with the small material on record it is difficult to isolate definite types. Treatment has been most unsatisfactory and oddly enough the first recorded case (1834) did far better than the average of its successors for the patient lived three years after perineal incision followed by cautery. In 79 per cent of cases analyzed the survival did not exceed 6 months. Naturally in the interior urethral location amputation of the penis is at once performed but usually there has been no attempt to extirpate the inguinal glands. Radium is mentioned in but one case as securing survival as an accessory to the knife, although the patient might have lived with-

out it. Here the membranous urethra was excised and a piece of vein implanted in its place. The result is the best recorded. The author's results were unusually good as one patient is living and well 3 years after intervention. Diagnosis was made by endoscopy and biopsy which caused severe bleeding requiring a suprapubic cystostomy. The growth was treated with electrocoagulation and radium (deep urethra). The second patient had cancer of the penile urethra and right groin and palliative X-ray treatment.

PROSTATIC ABSCESS.—A Peterson of Los Angeles gives a brief account of 7 cases of this affection in the *Journal of the American Medical Association* for Jan. 12. There is a gonococcic type due to direct involvement from a posterior urethritis and a metastatic type due to some remote focus and mongonococcic. In a series reported once by Randall the two types were equally represented. Of the author's 7 cases 4 were presumably gonococcic and 3 metastatic—2 perhaps from an influenzal metastasis and one from a focus in the nose. In diagnosis too much reliance should not be placed on the perception of softening and fluctuation. In treating these cases the author uses the prostatic tractor of Young to bring the gland in closer relationship with the perineum and then makes a u-shaped incision through the latter. An extensive discussion followed this paper. Thomas of Minneapolis believes that small prostatic abscesses are of frequent occurrence and often overlooked. He has sometimes evacuated the abscess into the posterior urethra. McCarthy thinks that diagnosis by rectal touch is antiquated and others also insist that radiology, cystoscopy and all other resources should be mobilized. Several were opposed to expectant methods and would not wait for fluctuation which may mean destruction. Some regarded opening into the urethra as poor surgery. Waller of Kansas was opposed to laying down rules, for in special cases unusual methods might be justified. Some urologists would make distinctions in the treatment of gonococcic and metastatic abscesses for aspiration has answered well in the former and otherwise in the latter. Wethall saw death from sepsis follow a case with open operation. In general the discussion brought out the wide differences of opinion throughout the entire subject and any statement as to diagnosis and treatment may be challenged, suggesting that individualization of the case must be the desideratum.

VASECTOMY IN HYPERTROPHY OF THE PROSTATE.—Hutter of Leichtenstern's Vienna Urologic Clinic refers to the custom, practiced for many years at the clinic, of performing vasectomy from the beginning of the catheter treatment of enlarged prostate and used at times in connection with the retention catheter. This intervention was performed from 4 to 8 or more weeks before prostatectomy in radical operation cases but was also apparently used in many cases which never came to prostatectomy. The author sought to follow up 100 such cases. Since 22 were dead or vanished the material was reduced to 78. In no case did an enlarged prostate ever become smaller. In 27 cases there was no benefit and in 14 the patient became worse. In 18 there were both subjective and objective improvement. In 10 there was subjective without corresponding objective improvement. In the remaining 9 there was evidently some objective improvement. In a few cases improvement appeared some months after vasectomy. The patients were operated on between the ages of 51 and 87 and the younger of these patients were apparently the ones to benefit.

Patients with acute retention or much residual urine benefited more than those with partial retention over long periods. The latter showed more severe alterations of the bladder mucosa than the former. In none of this series was there any evidence of malignant degeneration. There was no sign of improvement in any symptom referable to the size of the prostate, this following naturally from the statement that no prostate underwent any reduction in volume. There was not the slightest evidence that vasectomy had caused any improvement in the general condition. Evidently there were no phenomena suggestive of rejuvenation. (*Munchener med. Wochenschrift*, Sept. 27).

Bladder

COMPARISON OF LEUKOPLAKIA, MALACOPLAKIA AND INCRUSTED CYSTITIS.—F. H. Redewill describes these affections jointly in the *Journal of the American Medical Association* for Feb. 16 and reports 2 cases each of incrustated cystitis and leukoplakia and one of malacoplakia. The latter condition is especially rare and but 44 cases, including that of the author, have been reported to date. Cases should not be accepted as such unless a portion of the removed plaque shows the macrophage cell and the Michaelis-Cutmann bodies. The author states that 88 cases of leukoplakia are now on record while incrustated bladder is comparatively common. The three affections have in common the tendency towards the deposit of calcium salts and the tendency to epidermization. Some material benefit accrues in all three from the presence in the diet of all the vitamins and injection of parathyroid substance, while other resources comprise the Player method of cautery, diathermy and injections of ecto-antigen. Two untoward complications are malignant degeneration and blocking of the ureters. In administering parathyroid it is of course essential to check up on the blood calcium.

CYSTITIS DUE TO THE TRICHOMENAS VAGINALIS.—J. W. Visser reports a case of this rare affection in the *Journal of the American Medical Association* for June 22. It was first recognized in 1894 and about a dozen have reported cases, mostly one to a reporter. It may occur in the male as cystitis, urethritis and pyelitis and hence may be regarded as a rare form of venereal contagion. The author's patient was a woman married but childless, who had first complained of a vaginitis and later of vesical irritation. The condition progressed and appeared to ascend to the kidney with temperature of 104.6 F. The urine was cloudy and at times bloody. Hexylresorcinol gave no relief. In the hospital the diagnosis was made of acute pyelitis although it was not thought best to use the cystoscope. The author succeeded in introducing the catheter into the right ureter without it, and left it in position for irrigating the pelvis. Pus cells but no organisms of any kind were found. The pyelitis seemed to have subsided but the cystitis remained unchanged. At a later period the cystoscope was used and inflammation seen at the vesical neck and ureteral orifices. Complete examination of the upper passages revealed nothing abnormal although the right kidney was considerably less efficient. The bladder urine contained many of the trichomonas parasites and others were abundant in the vaginal discharge. The bladder condition was difficult to cure and one recurrence occurred, probably from reinfection from the genitals, an endocervicitis harboring the organisms. The patient cannot yet be considered cured although her general health is good. Mercurochrome was the antiseptic used. The author prefers to speak of a vesical infection, as the exact involvement of the upper passages is not clear.

PRIMARY ATONY OF THE BLADDER: CHETWOOD'S DISEASE, ETC.—A condition described as primary atony of the bladder by Düttman of Giessen (see *Klinische Wochenschrift*, September 10, p. 1738) appears to stand in close relationship with what is commonly known as prostatism without enlarged prostate, Chetwood's disease, etc. For the most part the Germans and Austrians do not make use of the American conception of this affection and invoke a variety of causal factors such as atrophy of the prostate, defective innervation, etc. The author refers to difficult passage without obstruction in such cases as allow us to exclude disease of the nervous centres. He has a series of these and divides them into three groups: 1. Atrophy of the prostate 2. Small adenomata of the periurethral or perivesical glands and 3. Sclerosis or contracture of the neck of the bladder. He describes minutely the cystoscopic appearance of the neck of the bladder and the inner margin of the sphincter as it occurs in each of these subdivisions. If diagnosis by the natural passages proves inconclusive he would not hesitate to perform an exploratory cystotomy. If the bladder can be shown to be an insensitive sac, any operation for the patient's relief will prove futile. The use of the retention catheter and permanent cystotomy diminish the chance for survival if the kidneys are secondarily involved.

BLADDER DYSFUNCTION FOLLOWING PROSTATIC ABSCESS.—R. E. Cumming gives one case of this association which he regards as of unusual interest. Sudden massive destruction of the gland entailed grave bladder dysfunction—retention, incontinence and grave hemorrhage. In a quoted case the dysfunction consisted of complete and permanent retention. In the author's case the prostatic prominence was replaced by a pseudodiverticular cavity and the aim of treatment was to merge this cavity with that of the bladder. The author shows by cuts and röntgenograms the relative position and relationship of the two cavities. The diverticle opens into the prostatic urethra and the cavities are separated by the bladder wall which forms a septum. Hemorrhage into the cavity was the result of secondary infection—diverticulitis. After a cystotomy it could be shown that the internal sphincter had ceased to function although the external one was intact. Tissue which acted as an ordinary median bar was excised, a large wedge-shaped piece was excised from the septum, and the bladder was closed with free drainage. No elements of the normal prostate were to be found in the excised tissue. The median bar alone could explain both incontinence and retention. The interest in this case was due largely to the fact that in an earlier one of the same type he had obtained an operative failure. This case, reported in 1924, was entitled *Permanent Urinary Retention Following a Prostatic Abscess*. (*Jl. Am. Med. Assn.*, Jan. 12.)

SUPRAPUBIC CYSTOTOMY IN BLADDER PARALYSIS.—Boyd and Bailey of Atlanta, in an article in the *Journal of Urology* for May, after pointing out the great variety of procedure recommended for this affection, seek to show that suprapubic cystotomy is the method of choice. Others comprise simple catheterization, retention catheter, aspiration (mostly suprapubic), suprapubic drainage, massage of the prostate, abdominal pressure, etc. The authors report 8 cases, due to disease or injury of the cord. The first was not operated on. Bladder paralysis was incomplete and the urine became infected without catheterization. The condition of the bladder was shown by the presence of residual urine without obstruction. In the second case, treated by catheterization, suprapubic cystotomy was refused and the patient succumbed to chronic urinary infection. The

other patients all developed severe cystitis but owing to the suprapubic incision and drainage have done well although forced to keep the fistula open. They have escaped back pressure and renal damage as shown by tests of renal permeability and have also escaped an ascending infection.

SPONTANEOUS DISAPPEARANCE OF A PAPILLARY CANCER OF THE BLADDER.—Wilensky and Firestone (*Jl. Urology*, May, vol. xxi, 611) refer to the paper of Strauss on the spontaneous disappearance of cancer in general. Kohn has followed up the subject and mentions one case of bladder cancer in this connection. Horwitz has reported one case and Kemble two but there is always the possibility of fallacy. The papillary cancers of the bladder may have been benign papilloma. Still another case is reported by McGowan and the present authors add a sixth. Their patient showed in a cystoscopic examination that he had a papillary growth of the bladder, proved by biopsy to be cancerous. Yet this growth vanished soon after the biopsy. The authors mention the disappearance of uterine cancers in this fashion and, in addition to adenocarcinoma in this locality, chorioepithelioma, naturally highly malignant, also disappears spontaneously at times. Simple benign polypi share this quality and their spontaneous disappearance has been noted in the skin and mucosa. The authors naturally assume that the biopsy started up the process which ended in involution of the growth. This has happened before and partial excision for palliative purposes has had the same result. In place of involution the growth may have sloughed off. Papillomatous growths in the bladder are rather disposed to slough on slight provocation and the entire malignancy may have been in the slough. Irradiation may act by setting up the same conservative mechanisms.

MALIGNANT DISEASE IN BLADDER DIVERTICULA.—V. C. Hunt (*Journal of Urology*, January, vol. xxi, p. 1) of the Mayo Foundation refers only to such growths as develop within the diverticle and gives histories of five cases. A small number of cases has been reported from several urological clinics, but in some of them the evidence of primary cancer is not clear. While we are now able to make diagnoses of diverticles with reasonable certainty, it is as yet practically impossible to recognize malignancy in the clinic as developing within the diverticle. In one of the five only was the cystoscopic diagnosis possible because the growth projected from the diverticle and in another case it was thought a possibility. Different forms of malignancy are on record but in all five of the cases given the growth was an epithelioma. At the Mayo Clinic a number of cases of association of malignancy with diverticles have been seen in which it was impossible to state whether they were primary or secondary but the author believes that most if not all were extradiverticular. The treatment is the same as for simple diverticle when it has been decided to extirpate. In regard to prognosis this ought to be better than in ordinary malignancy of the bladder; but in the series reported there was one death from recurrence within a year and two deaths from post-operative complications. The others recovered but the elapsed time has not been long enough to speak of radical cure.

Ureter and Renal Pelvis

CYSTIC DILATATION OF THE VESICAL END OF THE URETER.—J. Minder, assistant to Prof. Clairmont of the Surgical Clinic, University of Zürich, mentions the infrequency of this condition with the diagnostic difficulties involved. Like two similar affections, prolapse of the ureter and ureterocele, it may be accompanied by urine which is quite normal. Diagnosis is made by

the cystoscope, the normal slit of the ureter being replaced by a prominence, a conical tumor, on the surface of which may be seen—although not always—the displaced ureteral orifice, which appears as a point. In typical cases a distinct pulsation is seen as the ureter forces the urine into the bladder, which is accompanied by change in volume. The condition is usually the result of a congenital malformation although it may follow an atonic state of the ureter due to adnexal disease. The mechanism is obscure. A prolapse of the ureter is easily reduced by pressure of the ureteral catheter which is never the case with cystic dilatation. Some urologists have combined the latter with a condition known as phimosis of the ureter to form a general alteration known as a ureterocele. The latter term should be reserved for a condition peculiar to women, which agrees with cystocele, rectocele and the like. In the absence of a cystoscopic examination the diagnosis would be impossible for there are no pathognomonic symptoms. The best treatment is electrocoagulation with the high frequency apparatus although cures may be effected by division of the cyst with a cutting instrument or the electric snare. (*Schweizerische medizinische Wochenschrift*, Aug. 31.)

STRICTURE OF THE URETER.—L. Perlmann challenged Hunner's dogmas about this affection at a session of the Berlin Urological Society on May 14 (*Klinische Wochenschrift*, Sept. 3). According to him diagnosis can be made only by röntgenography. Hunner's strictures are for the most part only physiological narrowings without any dilatation above. The peristaltic movement and spasm may often simulate stricture to the exploring sound. We can speak of a stricture only when repeated röntgenograms are identical and when other resources corroborate the latter. There must be a dilatation above the stricture. The number of true strictures is small and we must discriminate between congenital and acquired. The former are usually in the bladder segment, rarely in the pelvic segment and still more rarely in the course of the ureter. The acquired stricture may be due to trauma including operative trauma; to calculus causing a pressure ulcer; to ureteritis and periureteritis, especially tuberculous, and to tumors, infiltrations without, and adhesions to mesenteric glands. Under treatment the author states that when the pyelogram shows the kidney and pelvis free from gross destruction, which would call for nephrectomy, one may divide the ureter and reimplant it, either in the pelvis or bladder, or free the ureter from adhesions or operate within the bladder by progressive dilatation. The author reports a single case of congenital stricture 15 cm. above the bladder in a youth of 19. Owing to the destruction of the kidney nephrectomy was required.

URETERAL OBSTRUCTION IN INFANCY.—Drs. Campbell and Little report 74 cases of this condition in the *Journal of the American Medical Association* for Feb. 16. About 2 per cent of all infants present this obstruction and are thereby predisposed to infection and renal destruction. Any pyuria which resists treatment for more than 4 weeks indicates the need of a urologic investigation. In more than 95 per cent of cases thus investigated the authors have found some gross pathology. In the authors' material the diagnosis was confirmed by autopsy in 49 cases and was established in the balance by ordinary uroscopic methods. Ordinary stricture was by far the most common causal factor, all other causes being scattered in numbers. The diagnostic tests comprise all of those used in the adult. This condition takes the place to some extent of the older one known as pyelitis, which mostly represents a secondary infec-

tion, and of the symptomatic condition pyuria. It is characterized at times by exacerbations and remissions and is not necessarily helped by ordinary treatment, however intensive. In one large group of cases the obstruction of the ureters is congenital and the onset insidious. It is fortunate that bilateral cases are rare for it is the nature of this process to terminate in dilatation above the stenosis and destruction of a kidney. Treatment consists chiefly in the passage of ureteral sounds in the large group of cases due to internal stenosis. In discussion some of the members were of opinion that infection of the urinary passages in infants may be entirely benign. Pyuria may be only a passing phenomenon. Others believe the obstruction is seen in the lower tract, also that acquired stricture of the ureter is unknown in infants. Another view is that a relaxed atonic ureter may dilate without obstruction lower down. The subject seems in need of a rearrangement or reclassification.

CYSTOPYELITIC FINDS IN PERNICIOUS ANEMIA.—F. Basch (*Deutsche medizinische Wochenschrift*, Oct. 4) has had the opportunity of studying two cases of cystopyelitis due to *Bacillus coli* infection in subjects with pernicious anemia. The condition was chronic and did not improve with remissions in the parent disease. Pyelography showed normal filling of the pelves. The author cannot regard this coincidence as accidental even though it has rarely been noted in these patients. In both cases the same bacilli were found in the stools and in the duodenal soundings. Several observers mention the almost constant presence of the *Bacillus coli* in the upper intestinal tract and in large amounts. This may stand in some definite relationship with the theory that pernicious anemia originates in the intestine. In certain cases operations on the intestine have been proposed and even carried out—ileocolostomies—to short-circuit the small intestine into the colon. It is of course easy to understand how the organisms in question can reach the urinary organs and the author suggests that the resistance to them has been damaged by the basic disease, as in the case of the duodenum, where microorganisms are not found in health. Failure to benefit these patients appears to show that the prognosis in cystopyelitis in pernicious anemia victims is not good for recovery, even if the anemia yield to liver treatment.

Renal Function

BUJNEWITSCH'S THEORY OF URINE FORMATION.—Prof. Bujnewitsch of Litau, formerly of Moscow, sums up his theory in the *Schweizerische medizinische Wochenschrift* for Aug. 17. It was published for the first time early in 1928. The dominant Bowman-Heidenhain theory makes the water and chlorides secreted by the glomeruli while the canaliculi take care of other constituents. Such a theory contradicts the clinical facts. Thus if the glomeruli really had such a function their destruction would lead to a retention of water and salt but the exact opposite results if these structures are sacrificed. Again when the canaliculi suffer as in paraneurmatous nephritis and nephrosis, the urea escapes instead of being retained. The theory of the author is the exact reverse of the Bowman-Heidenhain, for it holds that water and salts are eliminated by the canaliculi while the glomeruli excrete the other constituents, notably the nitrogenous or organic ones. On the other hand the glomeruli are able to reabsorb water and saline and thus play a rôle in the concentration of the urine. With this hypothesis the author is able to account for all of the clinical phenomena. The glomeruli then bring about a molecular exchange, in that urea, etc., are excreted while water and chlorides are taken up from the urine after excretion by the canaliculi. In regard to similar claims the author

states that Chevallier four months after publication of the author's theory, as a result of some experiments, advanced the view that the glomeruli are essentially organs of absorption and not of excretion. Thus experiment corroborates clinical study and the author feels sanguine that his theory will supplant the older view, which has stood unchallenged for a half century.

DIURESIS FROM WATER SOLUBLE BISMUTH.—P. J. Hanzlik and three others of San Francisco give an exhaustive original account of this subject in the *Journal of the American Medical Association* for April 27 with the following conclusions. The sodium-bismuth tartrate when injected intramuscularly in doses of 0.03 gms. causes a prompt and well sustained diuresis in both normal and oedematous subjects, without any apparent untoward effects or reactions and without affecting the excretory function of the kidneys. In two test subjects the diuretic action of this salt was more powerful than that of merbaphen or theophylline sodium-acetate. This particular salt of bismuth was superior in action to that of any other combination of bismuth, soluble or insoluble. The use of it in experiment and in the clinic is not new but thus far no one save the authors has paid any attention to the diuretic property. One possible drawback is the fact that the salt in question does not appear to have a constant composition, for different market preparations contain different percentages of bismuth, and the exact nature of the salt is not certain. Technically it is a tetrabismuth tartrate. It is present in the solution in 1.5 per cent concentration, the water also containing 25 per cent of sucrose which in turn contains 2 per cent of benzyl alcohol. Two cubic cm. of injection, the intravenous dose, represent 0.0221 gms. of metallic bismuth.

SEPARATE RENAL FUNCTION.—L. C. Todd of Charlotte, N. C., reports in the *Journal of the American Medical Association* for January 19 the results of determinations made on 200 patients with special reference to the specific gravity test advocated by him on earlier occasions. In the meantime he has made improvements in the technic and wishes to contrast his results with those obtained by a dye-method, the usual phthalein one. In general he has found his specific gravity method not only more dependable but it saves the urologist's time and is less painful. There are several ways of determining specific gravity from small amounts of urine. The most delicate is the immiscible balance in which immiscible fluids like chloroform and benzoin are used. By this test a few drops may be made to give the specific gravity. An improved technic consists in the use of a mixture of purified chloroform, benzoin and carbon tetrachloride. In obtaining the urine stoppers are introduced into the ureteral catheters before washing out the bladder. The first urine is allowed to escape but only a few drops are taken of the test urine and only one or two drops are required for the density test, these being suspended in the immiscible mixture. With the position of the urine under exact control in the cylinder a special hydrometer is used. The author has mixtures prepared of which the densities run from 1001 to 1040. Tubes with intervals of five stops may be used into which the urine is introduced by a pipette. It requires about a minute to take a density. Since the results check up well with those of the dye-test the author uses his density method for routine work.

THE UREA TOLERANCE TEST.—This is the subject of an editorial in the *Journal of the American Medical Association* for January 19. Fasting blood urea is one of the best tests for renal adequacy and it has recently been shown that this does not increase until the kidneys

have undergone over 50 per cent of destruction. Such a test, however valuable, then is of no moment in the mild or beginning type of kidney alteration but there is the possibility of overloading the blood with urea given by the mouth. It has been shown that normal kidneys in the presence of ingested urea can take care of this excess so efficiently that the slight retention in the blood which first develops is followed by a return to normal blood concentration within about 14 hours. In the early stage of renal inadequacy, however, one gram of ingested urea for every ten pounds of body weight gives rise to positive results which may be utilized in the clinic. It is essential that the quantity of urine tested must be standardized, about a half liter being the optimum. In order to antagonize successfully urea retention the concentration in the urine must exceed 3 per cent. If too much water is taken or withheld the results will be vitiated for concentration is handicapped. The idea is that a kidney with a limited volume of water to eliminate must be placed under a stress to excrete an excessive amount of urea. If it succeeds it must be normal, if it fail it must be impaired in function.

THE HENCH-ALDRICH METHOD OF DETERMINING BLOOD UREA.—White and Ricker have a short article on this subject in the *Journal of the American Medical Association* for April 20. Work along this line has been under way in the Brady Urological Institute, Baltimore, for the past two years or more. As from 20 to 30 such determinations must be made daily at the Institute, choice of method is of vital importance. The method in question has been so satisfactory that it has been in use for the past 18 months. But 10 to 15 minutes are required for one determination and a point of excellence is that application of the method does not require great technical proficiency but may be carried out by one who is relatively a novice. No checking up method is thought necessary at present but originally the use of the urease test was added. Roughly the test consists in first ridding the blood of protein matter by trichloroacetic acid. After filtration mercuric chloride is added to the filtrate where it combines with the nonprotein nitrogen. For details the reader is referred to an earlier paper. The test was borrowed from another, the so-called salivary urea index method, in which the mercury salt combines with the urea in the saliva. High figures are obtained if the diseases leukemia and polycythemia are present and probably in patients on the liver treatment, which figures require a certain amount of correction. The method, as suggested, is to be recommended for the small private laboratory.

Diseases of the Kidneys

ACTINOMYCOSIS OF THE KIDNEYS.—Cumming and Nelson. *Surgery, Gynecology and Obstetrics*, Sept., xlix, 3. The title of the paper is actually "Actinomycosis of the Urinary Tract" but as no cases of the lower tract are known to exist, and the kidney is almost the sole organ involved, the title we append seems more suitable. The authors give a summary of the entire literature of the subject. In 9 cases the kidney was certainly primarily involved and to this number the authors add two personal cases, making 11. In a few others the kidney may have been primarily involved, while in at least 11 it was involved by extension and in 12 by metastasis. The total therefore is about 36 cases of actinomycosis of the kidneys. But the author finds a separate series of 24 cases in which with actinomycosis somewhere else in the body the kidneys were badly degenerated, in a number of cases with amyloidosis, and in another group as a result of chronic parenchymatous or interstitial nephritis. We

may say, therefore, that in actinomycosis the urinary tract is not infrequently involved, although a primary lesion is somewhat rare. Naturally when the process begins in or near the kidney the symptoms of a perinephritic abscess are simulated. It does not appear that a diagnosis before operation is the rule, but quite exceptional. The resemblance to tumor on the one hand and tuberculosis on the other is too close. In theory the ray fungus could be found in the urine, or there could be a focus of the disease in some other organ, or the occupation of the patient might serve to put the urologist on the right track. Necessarily the prognosis is grave, the more so if we reckon in the tendency of the kidney to degenerate in extrarenal cases. Again these cases are almost always late in reaching the surgeon.

HYPERNEPHROMA.—Judd and Hand. *J'l. of Urology*, July, p. 10. From the material of the Mayo Foundation the authors are able to do a good deal toward clarifying this subject. Although they frequently make use of the word hypernephroma the article makes it plain that this term is merely an antiquated expression for what is now regarded as adenocarcinoma of the kidney. Plainly they do not uphold the doctrine of origin of these neoplasms from suprarenal rests. Of the malignancies of the kidney 80% are adenocarcinomas and 20% alveolar carcinomas. The two types are distinct clinically as well as histologically and even give different pyelograms. The adenocarcinomas are less malignant, give a longer history of tumor and of hematuria and the cells show a greater differentiation. However, this distinction is rather recent and can hardly be made to apply to the records of the Foundation. Beginning with 1901 and extending to January, 1928, there are records of 367 cases of carcinoma of the kidney of which 212 were operated on and the balance only diagnosticated. Of the former 283 and of the latter 47 could be followed up. Many are dead, some from the disease and some from other causes but 106 patients survived anywhere from 3 to 22 years, the great majority presumably nearer the first than the last figure, as no average survival is given. The prognosis for the future surgery of cancer of the kidney is good for it should be easy to make an early diagnosis and operate early in one group of cases, that in which the pyelogram is of the "spider leg" type, characteristic of adenocarcinoma. The more malignant alveolar cancer can also be recognized at an early period by a characteristic pyelogram. The authors for some reason do not reproduce these shadows.

REGIONAL ANESTHESIA IN NEPHRECTOMY.—Henline reports a new method of paravertebral anesthesia in general renal surgery and Jeck has a paper on spinal analgesia with especial reference to nephrectomy for tuberculosis, both in the *Journal of Urology* for January. Henline reports 33 cases done under his method of which 21 were nephrectomies. The first step in his procedure is to give a combination of morphine sulphate and magnesium sulphate at half hour intervals until 3 injections have been given. The solution also contains procain. For nerve blocking a solution of plain procain is used and splanchnic analgesia and ordinary infiltration of the incision line are also practised. As a result the anesthesia is absolute. Naturally the technics are correspondingly complex. The method is evidently vouched for by Lowsley, who furnished the cases, as the one of choice in 90% of all renal surgery. Jeck as a result of personal experience concludes that spinal analgesia has a special field in renal tuberculosis where general narcosis is often contraindicated. The drug recommended is novocain in the form of Pitkin's solution and is the only anesthetic in the latter. In discussion Ockerblad reports the combination

of novocain and ephedrin, the latter intended to ward off the drop in blood pressure seen in spinal analgesia. He disapproves of such mixtures as Pitkin's solution, which are used because they are lighter than the spinal fluid. Nelson of Seattle defended lighter solutions because they certainly do float upward in the spinal canal. The solution should be bloodwarm, a fact often neglected. Henline in closing stated that paravertebral anaesthesia can be given only by specially trained men while spinal is for routine use. Jeck has not used the Pitkin solution arbitrarily but only after careful control comparison with other plans; and he finds it gives the better results in all respects.

INFANTILE KIDNEY.—Fleischmann and Anderson of Des Moines point out the rarity of articles on this subject, quoting six references during the past 18 years. Synonyms for infantile kidney are congenital atrophic kidney and renal hypoplasia. The authors have recently encountered a case in practice in a woman of 53, who was seized with acute pain under the left scapula with vomiting. The urine was normal and there were no urinary symptoms. She lay in bed for two weeks by which time the pain had subsided. A second attack supervened in about six months and this time the urine contained albumin, pus and a few red cells. A mass could be felt in the left flank. In the hospital a complete urologic examination was made. The mischief appeared to be in the right kidney which was less active but a pyelogram of the left side showed the suggestion of a renal tumor. Cystoscopic finds negative. Later a right pyelogram suggested a rudimentary pelvis although not typical of infantile kidney. The urine from the right kidney despite low amount and delay in passing phthalein was normal. The case was pronounced inoperable as with a tumor in one kidney the other was seen to be inefficient, but as the patient took the risk an exploratory incision was made; however, on account of shock no palliative procedure could be attempted. Death took place in a few hours. The photograph shows a large hypernephromatous kidney on the left with a minute but apparently otherwise normal right kidney—but 6 cm. in its long diameter.

PARANEPHRITIC ABSCESS IN CHILDHOOD.—J. S. Eisenstaedt reports two cases of this affection in the *Journal of the American Medical Association* for Jan. 5. He could find mention of but 6 other cases in the Michael Reese Hospital since 1913, which makes the condition somewhat of a rarity. Collections of cases show the same infrequency, as Kuster could assemble but 41 cases up to the age of 20 years. Even with this rarity four separate types may be isolated, a primary renal from disease of that organ, a secondary or metastatic renal from the blood stream, etc., etc. Trauma is an important causal factor both indirect and direct. As a rule, taking cases as they come, the origin is obscure. Pathological finds show great variety but bilateral cases are naturally rare. Symptoms are vague and are what one may expect in deep suppuration after the condition is advanced. Diagnosis is impossible but may be surmised if the patients should suffer or have suffered from boils or carbuncles, although this association seems to be far less common in childhood than adulthood. Little can be expected from uroscopy and röntgenography. Statistics show that most patients recover if it is not too late to operate with the aim of simple drainage. In discussion Dr. Habein of the Mayo Foundation stated that cases are late in reaching the operator. In cases secondary to renal mischief the usual diagnostic resources can give good results. The discussion showed the extreme difficulty of making anything like a unit disease out of this condition.

RENAL BACK PRESSURE.—H. A. R. Kreutzmann shows in the *Journal of the American Medical Association*

tion for Jan. 19 that this condition is set up, as commonly believed, by obstruction at the neck of the bladder or urethra. His thesis is based chiefly on röntgenography. The actual factor in obstruction is the hypertrophied bladder muscle, which will disappear with removal of the mechanical obstruction that must be in the intramural urethra whatever its actual nature. Before back pressure can be spoken of the intravesical pressure ought to be taken, and by routine use of the Crowell manometer the author was able to show that subjects who catheterize readily have a pressure as high as those who are difficult in this respect. In discussion Braasch spoke of incidental factors such as softening of the tissues and loss of tone in general which predispose to yielding to back pressure. It is not readily intelligible why some patients have dilatation of the ureters while others escape. Aschner spoke of an overlooked factor mentioned by Tandler and Zuckerkandl—the crossing of the ureter by the upward displaced vas deferens and of enlarged prostate with formation of a locus of obstruction. Other factors were also mentioned to complicate the problem, which is much more than a merely mechanical damming back at the bladder neck. In closing the discussion the original speaker did not believe that casual factors, such as a periureteritis for example, affect the general truths which he thinks are established by his research. It has not been shown definitely that they can cause back pressure. In reply to Aschner he refers to an earlier paper in which he discusses thoroughly the rôle of the vas deferens in obstruction. In such complications the indwelling catheter gives relief and this ought to show that the obstruction is low down.

NEPHROSIS: A CRITIQUE.—H. A. Christian takes up the entire subject of nephrosis (as distinct from lipoid nephrosis) in the *Journal of the American Medical Association* for July 6. The use of this word goes back to 1914 and for years it served to indicate any degenerative disease of the kidney not due to actual nephritis. Many forms have been isolated but out of the confusion has come a special type, called true or genuine nephrosis, chronic nephrosis or lipoid nephrosis. Going back through the literature the author is able to isolate 18 cases in which there was autopsy corroboration. As it is possible to diagnosticate this affection without autopsy, it must be quite common and comparatively benign. But the author's contention is that the cases often called nephrosis in the clinic are not what they seem. Statistics of some of the large hospitals where renal diseases belong under a special service show that the affection is extremely rare. The author is inclined to the belief that this true nephrosis is a syndrome rather than a disease and while the word has been very convenient in the past, the time has now come to go back to the generic term nephritis for all of the chronic parenchymatous affections of the kidneys. The basic diagnosis ought always to be chronic nephritis; then if a certain syndrome is present we may utilize the term nephrosis in a descriptive sense. The syndrome is not uncommon in childhood. It may be summed up as albuminuria, edema, low blood protein, increase of globulin at the expense of albumin, excess in the blood of cholesterol, lowered basal metabolism, etc. The author makes no allusion to the often expressed belief that lipoid nephrosis is a constitutional malady with secondary renal lesions.

LIPOID NEPHROSIS.—O. Diebold writes at length on this subject in the *Deutsche medizinische Wochenschrift* for September 13. The affection is rare, for in the pathological institute of the Moabit Hospital, Berlin, but 6 cases have been seen and 5 have already been reported in a paper by Löwenthal. The author now reports the sixth case as follows: it was typical with an insidious onset,

failure of health and efficiency with later oedema and albumin and casts in the urine, diagnosis established by the presence of doubly refracting lipoids in the urine sediment and the absence of red blood cells in the urine, and absence of hypertension and of symptoms of nitrogen retention. The disease lasts for years with occasional periods of improvement. Patient was a woman of 24. Autopsy showed that there was no inflammatory process in the kidneys but they were infiltrated with lipid substance to such an extent that at the end there was complete anuria. Characteristic was the increased per cent. of cholesterol in the blood and the lipid infiltration could be traced in the liver, pancreas, adrenals, ovaries, thyroid, brain and heart. The affection, then, represents a general disturbance of the lipid metabolism throughout the organism. Thus far we know nothing of the nature of this anomaly.

RÖNTGEN DIAGNOSIS OF NONSUPPURATIVE PERINEPHRITIS.—O. A. Schwarz read a paper with this title before the Berlin Urological Society on March 26 (*Klinische Wochenschrift*, Aug. 27, p. 1640). There are two types of this affection, in one of which infection of the urinary tract is recognizable while in the other it is absent, the infection presumably having run its course. In the first type, if sufficiently well advanced, the pyelogram shows the pelvis or calyces either dilated or contracted while the lumen of the ureter also shows variation at times. If these patients are subjected to operation we shall always find participation of the capsule of the kidney, periureteritis and sinuous course of kinking of the ureter which may have led to the diagnosis of stricture of the latter. If there is a negative pyeloureterogram diagnosis is naturally extremely difficult. Even in advanced cases the shadow on the affected side and the absence of the psoas shadow may not show up. One must then look for stasis states in the pelvis and calyces, flattening and disappearance of the smallest calyces and the course of the ureter (comparison of the two sides). We are unable to explain the frequent occurrence in these cases of gastroenteric symptoms. In discussion Rachwalsky corroborated the author on the diagnostic picture and the frequency of gastroenteric symptoms, and W. Grossmann, who has studied the pathology of perinephritis under von Lichtenberg, stated that the extensive involvement of the perirenal tissue was often out of all proportion to the primary focus and that fresh perirenal foci might develop after long quiescence of perinephritis.

RENAL TUBERCULOSIS.—Hans Wildholz (*Jl of Urology*, Feb., vol. xxi) has now done nephrectomy for this affection 660 times with an operative mortality of less than 2.5%. He has had two unbroken series of cases without death, of 140 and 182 respectively. We often verify the fact that results for the first few years after operation are good but there is great room for learning final results. The number of cases operated on more than 10 years ago is now 341 and of this total the number which could be followed up for end results amounts to 270 in round numbers. Of this number 40% are dead, chiefly from tuberculosis of the other kidney or pulmonary or miliary tuberculosis. The other 60% (the author says 59%) are all living and but 3 are still affected by urogenital tuberculosis (cystitis). All of the others remain free from tuberculosis in any form. The very great majority remain free from functional bladder troubles. The end results of the author agree closely with those of Rafin and Suter, so that we may give the end recoveries as 55 to 60 per cent of those operated. It does not appear that there is much chance of improving this percentage but all depends on the rejection of bilateral cases for operation. In discussion the opinion was advanced that the superior end results were the result

merely of careful elimination of bilaterals. In rebuttal Dr. Wildbolz expressed the view, based on renal functional tests, that the disease is chiefly unilateral. He does not believe that a kidney ever so slightly tuberculous can show normal permeability although some Americans hold the contrary view. This seems to be the crux of the matter.

RENAL TUBERCULOSIS.—H. S. Jeck analyzes the material of the Bellevue Urological Clinic for the past nine years in the cases of renal tubercle which came to operation (*J'l Am. Med. Asso.*, Jan. 26). The number operated on was 60 but in a few the diagnosis was not confirmed by the microscope. As there could be no reason to doubt the diagnosis the sixty cases are analyzed. The analysis was most exhaustive but many of the finds are of minor interest. Twelve patients died in the hospital. Accumulation of operations in 1919 and 1920 can be explained only as a reflex of the war. In regard to particulars of death 5 were due directly to the operation, and in five other patients it was due to pulmonary tuberculosis. Another death resulted from bronchopneumonia while the mechanism of the twelfth case is unknown. But four autopsies were obtainable and the only thing learned was that these patients had foci of the disease outside of the genito-urinary tract. The author regards the death rate (20.7%) as appallingly high and does not believe it can be improved until the entire patient is treated. If the extrarenal foci could be recognized and treated before nephrectomy the operative mortality might be reduced notably. Since half the deaths are blamed on the lung lesions it is not apparent how the author proposes to proceed against them. As three deaths were technically due to shock the author believes that spinal anesthesia might reduce the mortality. It has been used often enough to suggest that it could be made a routine measure. The author does not mention selection of cases as a factor and evidently regards all nephrectomies as operations of necessity.

RENAL TUBERCULOSIS.—Edwin Beer gives 25 years experience with about 300 cases of this lesion in the *Journal of the American Medical Association* for June 8. No attempt is made to formulate any conclusions. The disease seems to the practitioner to be vesical but methenamine does not relieve the irritation. Aside from the type that simulates cystitis there is another which may be confused with stone, a third suggests tumor through the hematuria, a fourth which is very puzzling consists of pyuria without symptoms. There is also a type which is at first vesical in symptomatology but which later subsides and may be thought to have yielded to treatment. In this type the tuberculous kidney has been excluded from the bladder by some obstruction in the ureter. There is a sixth type which simulates acute pyelonephritis and a seventh characterized by perirenal suppuration. In unilateral cases the patient may seem in fair health, bothered only by nycturia. Not much can be learned by palpation. One complete cystoscopic examination with ureteral catheterization ought to suffice for diagnosis but in sensitive bladders this may be out of the question and lumbar analgesia may be necessary. If the bacillus is found in the urine the diagnosis is settled but in negative cases, despite the great variety of lesions possible, the form of cystitis secondary to kidney involvement indicates the nature of the process to the experienced urologist. The author uses indigocarmine as a renal efficiency test. To reduce diagnosis to a simple formula the presence of pyuria and bacilli in urine obtained by the ureteral catheter gives certain evidence of renal tuberculosis. The author lays down

no maxims nor does he give any percentages in regard to nephrectomy.

Comment: The time should not be far distant when urogenital tuberculosis is treated preoperatively and post-operatively, as tuberculosis of the lungs is treated, by climatic and advanced body-building. Undoubtedly X-ray therapy and ultraviolet light have their high values here.

HYDATID CYSTS OF THE KIDNEY.—Because of the rarity of this affection in the United States and the meagre accounts in our textbooks Meltzer of New York, having had a private case, sent out a questionnaire to members of the American Urological Association asking answers to 5 questions (*Journal of the American Medical Association*, June 8). The questions referred to the number of cases seen, source of infection, diagnosis before operation, result of surgical treatment and autopsy finds with special reference to hydatids elsewhere in the body. The total number of cases brought out including the author's was 22 with two extra autopsy cases, making 24. In 1923 Kretschmer had reported 17 cases, one personal, the rest from literature. In 7 of the author's series diagnosis had been made before operation by the presence of hooklets in the urine. There were 3 wrong diagnoses corrected by operation. Sixteen nephrectomies were performed with 10 patients called cured and 3 improved. This is a better record than Europe offers, for owing to belief in high operative fatalities some of the surgeons will not perform nephrectomy for these cysts, choosing to treat them conservatively. In the author's case operation was refused until the case was far advanced, patient succumbing to the shock of operation.

END-RESULTS OF CASES OF RENAL AND URETERAL CALCULI.—R. Chwalla in the *Zeitschr. f. urol. Chirurgie* gives end results in 234 cases of calculus disease treated by operation or conservatively in a Vienna clinic. After removal of the stone by nephrotomy the application of the indigocarmine test on the operated kidney shows that in the great majority of cases the excretory function of the kidney becomes normal or at least improved. But if this does not take place it usually means an overlooked stone or a recurrent stone. Even in cases of calculous hydronephrosis in advanced state the kidney may gradually regain its normal excretory power although some years may elapse. In 31.5 per cent of the renal and 25.5 per cent of the ureteral calculi which could be followed up a recurrence of stone took place on one side or the other. Recurrence was far more common after nephrolithotomy than after pyelonephrotomy and ureterolithotomy (36.3 per cent as compared with 8 per cent and 7.4 per cent). In 16.2 per cent of the nephrectomies for calculous kidney recurrence occurred in the remaining kidney. Many so-called recurrences are, of course, cases of overlooked stone although röntgenography immediately after operation is supposed to be a part of routine procedure.

RENAL OPERATION TECHNIC.—Prof. Pflaumer, the urologist of Erlangen, writes at length on the technic of renal surgery, which he seeks to reduce to a manual. There are two separate interventions, the access to the kidney and its liberation and the renal operation proper. The usual method of lumbar incision exposes only the lower pole and one then works upward more or less blindly. The author has renounced this method and instead endeavors to expose the upper pole and work under eye control. This method has all the advantages which should accrue under the latter. The author describes at great length his incision. He is guided to

some extent by röntgenograms. In some but not in all cases he resects the 12th rib. This he has done often and has never had a traumatic pleurisy. With the kidney once exposed it is not necessary to isolate it in conservative work; in fact it is often better, as in the case of a calculus in the pelvis, to explore with the kidney in normal position. In a number of conditions it is best to avoid the risk of mobilizing the kidney for fear of accidents. Each case, whether tuberculosis, tumor, hydronephrosis, calculus, etc., must be strongly individualized. The diagnosis has presumably been made before

intervention by means of all of our resources conjoined and the access incision is made accordingly. Whether or not the kidney is luxated before operation must depend largely on the individual case. The author does not think it worth while to tie the pedicle first to prevent thrombus generalization from the renal veins but would always free and section the ureter before nephrectomy. If then it is desired to ligate the pedicle this may be superadded. (*Münchener medizinische Wochenschrift*, Sept. 27).

45 West Ninth St.

Progress in Diseases of Nose, Throat and Ear

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The modern tendency toward conservatism in the treatment of ethmoid sinusitis is especially emphasized in the case of young children and infants. Unless complicated by orbital pathology, Theisen believes radical surgery should be avoided. Conservatism in the treatment of ethmoiditis, acute or chronic, is becoming more and more an axiom among rhinologists. Concerning the surgical treatment of chronic ethmoiditis, Skillern points out that it is impossible to expose the mucosa completely of each ethmoid cell in every case. These cells unfortunately have no standard anatomical configuration so that anomalies are frequently encountered and deep lying cells often escape our attention—this being the reason why the ultimate result of our cases is not 100 per cent good. However, Skillern believes that when properly executed the intranasal operation on the ethmoid sinus offers the least dangerous opportunity to the patient for relieving him of his distressing and oftentimes dangerous infection.²

Sinusitis affecting the ethmoid and sphenoid sinuses can be demonstrated by a thorough roentgenographic study. Pfahler³ has shown that the extension of chronic deep sinusitis to the base of the skull can be detected by X-ray largely through evidence of a local or general osteitis involving any of the cranial fossae. Certain anomalies of the sella turcica may be due to an extension of sinusitis which may produce a more or less chronic meningitis.

The relation of migraine to nasal conditions has only recently been studied. Sluder reported cases of ophthalmic migraine relieved by treatment of the nasal sinuses. Gundrum reports a case rendered symptom free by injecting 0.5 c.c. of 5 per cent solution of phenol in alcohol into both nasal ganglia. He believes that if, after exhaustive study, a pathological condition cannot be found, one is justified in treating the nasal ganglia.⁴

Berry⁵ has closely observed the relation of dental caries in sinus infection. A dead or dying tooth in close proximity to the antral floor, no matter how harmless it appears, is a threat. Recurring pains in the antrum of this side, and pus and polypi in the middle meatus, should attract attention to teeth or to a possible buried root. The observation and removal of such a nearby septic focus will clear up many a stubborn nasal condition.

Diseases of the nasal sinuses and of the ear are intimately associated and the prevention, alleviation and cure of one necessitate similar procedures for the other. E. P. Fowler⁶ has shown by histories, tests, X-rays and clinical progress that recurrent inflammation in one is

caused by inflammation in the other, just as sinusitis in one nasal sinus may occur or recur as a result of infection from one of the other nasal sinuses. He believes that the coexistence of otitis and active or latent sinus infection is not coincidental.

Harris in his résumé of the treatment of acute sinusitis says that the most common type is the catarrhal type which on account of the mildness of symptoms can easily be overlooked. Acute sinusitis in children is a common occurrence often passing unnoticed. The sinuses should always be considered as a possible focus of infection. It is important to institute early and suitable treatment to prevent cases from becoming chronic. All surgical procedures during the acute attack should be avoided, unless especially indicated to prevent the possible extension of infection.⁷

The bronchoscopist can learn much from the internist regarding the value of bronchoscopic treatment of abscess of the lung. When rupture has occurred into a bronchus, bronchoscopic drainage is the treatment to be first tried, the earlier the better. Emphasis should be placed on this fact because the value of bronchoscopy in lung abscess cases gains recognition slowly. Patients with advanced bronchiectasis can be aided by bronchoscopic drainage. It is hoped that something may be done by early recognition and by drainage at an early stage to lessen the serious late results. The treatment of patients in early cases of abscesses following tonsillectomy is almost uniformly satisfactory whereas patients with delayed diagnosis require radical treatment for a prolonged period and in the end remain invalids more or less. Bronchoscopy has added a brilliant chapter to the treatment of this disease. It has not replaced other surgical measures but does offer a great deal to those patients for whom the surgeon could do but little. When resorted to early in the course of the disease, it brings about a cure in a high percentage of cases without recourse to surgical drainage.⁸

Yankauer⁹ found that in nearly all cases of lung abscess, improvement and valuable results are obtained by the use of bronchoscopy. The objectionable odor of the sputum disappears, its quantity diminishes and periods of exacerbation are lessened. The general well being is improved to such an extent that the patient becomes able to resume his occupation and earn a livelihood.

There has been considerable discussion in recent years as to the relative incidence of lung abscess in local and general tonsillectomies. Under general anesthesia, there is opportunity for inhalation since there is deep narcosis in order to abolish the gag reflex, whereas under local

anesthesia the reflexes are maintained. Myerson in making bronchoscopic examination of 200 patients immediately following tonsillectomy, found blood and mucus in the bronchi in 155. This definitely proves that aspiration does occur under general anesthesia. Gatewood¹⁰ believes that postoperative abolition of reflexes under general anesthesia is probably sufficient to account for the greater frequency of lung abscesses. Some lung abscesses may result from the breaking down of infarctions. This may occur after local or after general anesthesia. Gatewood believes that operation under local anesthesia mitigates the chances of lung abscess by preserving the laryngeal reflexes during and especially after operation.

While the treatment for one of the most mysterious of nasal diseases—ozena—varies widely, the principle of narrowing the nasal chambers has remained outstanding. The implantation of ivory is the simplest and mildest operation in the opinion of Kemler and calls for no other treatment. The ivory has remained in situ on the floor of the nose in some cases for more than three years, with the same beneficial results as when the operation was first performed. Ivory has the distinct advantage over cartilage in that it does not absorb.¹¹ On the other hand, Hubert and Robinson¹² have used radium treatment in five cases of ozena and the results have been satisfactory. This is a valuable aid in attacking the most obnoxious feature of the disease, namely, the foul odor. These observers believe that radium has a new field of usefulness in a disease that up to the present has baffled otolaryngology. In all cases the crusts became less in quantity and softer, so that they could be easily removed. One of the authors recalls one case of severe atrophic rhinitis which was referred for X-ray treatment supplemented by radium treatment. The patient had ten X-ray treatments and two radium treatments and has been well since January, 1928.

It is probably too seldom that one realizes the importance of relations between infections of the nose and throat and mental diseases. Both Skillern and Hajek go into some detail regarding this phase in their books. Free believes that in mental diseases infections of the nose, throat and sinuses frequently form a part of the symptom complex. The diagnosis and treatment in early cases may prevent the development of a psychosis in patients already hospitalized, contribute to their comfort and sometimes to their cures.¹³

Yankauer calls attention to an important clinical entity which has for years escaped the notice of laryngologists. Nasopharyngeal abscess was first described by Tornwaldt in 1885, whence the name Tornwaldt's Disease. He erroneously considered it to be due to a pharyngeal bursitis. Yankauer points out that a pharyngeal bursa is a rare anatomical finding and believes the condition to be due to suppuration in the remnants of previously inflamed adenoid tissues, since a study of 155 cases showed that the vast majority occur in people between 20 and 40 (the period immediately following the involution of adenoid tissue) and in those who have not had adenoids removed. The diagnosis depends upon the use of the direct nasopharyngeal speculum, a smooth, red, glistening or else a gray, polypoid midline swelling being found. In the open type of abscess the symptoms are postnasal discharge, nausea, hawking, coughing and sneezing; in the closed types, pains in the head and neck, nasal obstruction, nasal speech, sore throat and cervical adenitis. Treatment consists in opening the cavity with a probe, evacuation of the contents (usually thick pus) and application of 20 per cent silver nitrate to the lesion.¹⁴

It is now generally realized that only the early diag-

nosis of carcinoma of the larynx can render the ultimate prognosis fair. Dr. MacKenty¹⁴ stresses the importance of a very early diagnosis. If both physicians and laymen could be oriented on one fact—that progressive hoarseness is a danger signal; if the medical profession would urge a thorough and competent investigation of this danger signal; if the entire truth were told about radium and if the laryngologists would heed the dictate of general surgical experience in the treatment of persons with cancer, i.e., radical removal, laryngologists would be doing their honest best with their allotted 5 per cent share of patients with this dire disease.

Rackemann and Tobey found that 28 per cent of patients with asthma gave a history of previous operations on the nose and throat without regard to the cause of asthma as found. Examination showed a true focus of infection in the nose, throat and teeth in one-half the cases. However, these observers found that the presence of foci bears little relation to the outcome of the asthma. The usual treatment of these foci is disappointing. The local treatment of the nose, throat and teeth has apparently brought about permanent relief from asthma in 50 per cent of the cases. They suggest that local lesions of the nose and throat may develop from the same fundamental cause as the asthma itself and be part of the pathologic process of the disease.¹⁵

Among the newer histological phases, a considerable amount of work has been done in the past year. Wilkenson¹⁶ has studied 10,000 pairs of tonsils. He concluded that all tonsils show evidence of chronic infection, if the presence of leucocytes in crypts and ulceration of epithelium are indications of infection. In over 10 per cent cartilage and bone in various grades and proportions were found and in these cases fibrosis is relatively increased. Tuberculosis 0.52 per cent, foreign body, giant cells, cholesterol, trichinae and actinomycosis are among the pathologies found in the pathological study of tonsils.

Kleinert¹⁷ studied the relation between patients that bleed after tonsillectomy and their respective coagulation time. A study was also made of those cases that do bleed in comparison with those which do not, and third, a study was also made to learn how many bleeding cases there have been. There were only five post-operative hemorrhages in 645 cases and in each case the coagulation time of blood was low. He concludes that nothing is gained by continuing routine coagulation time tests. It is important to consider the age, contractility of tissues and general physical condition of the patient. Only one case was found to have coagulation time of more than eight minutes.

Failure to elicit cause for scalp tenderness outside of the affected ear in cases of acute mastoiditis, and decided relief following mastoidectomy and exposure of the dura, have prompted A. Jason Dixon to investigate each case of mastoiditis prior to operation for the aforesaid complaint. When present, he has been able to reproduce the symptom of dural irritation by packing snugly against the dura following operation.

Aside from the clinical interest, the symptom has proven of value in several ways. First—as an indication for the exposure of the dura of the middle fossa at the operation. Second—assistance in selecting the most extensively involved ear in bilateral mastoiditis. Third—as an additional indication for mastoidectomy. Fourth—the diagnosis and drainage of an extradural abscess and possibly the prevention of this complication.

In addition to the scalp tenderness which is unilateral, there is usually a complaint of shooting pains in the eye on the corresponding side of the head and sharp inter-

mittent shooting pains deep within the ear. The patients are usually quite nervous, sleep poorly, lose weight, have a poor appetite and run a normal temperature. The hemoglobin drops 20 to 30 per cent and they have a leucocytosis of 10,000 to 13,000.

The ear findings in most cases are no different from those of an ordinary acute suppurative otitis media.

Dural involvement is more frequently met with in adults, particularly those of fifty years of age or over, with a thick tough drum, a hard dense cortex and an adherent periosteum. Patients with dural involvement are also more difficult to anesthetize.

La Forà in 1915 brought out a symptom, somewhat similar to scalp tenderness. That is nasal itching which he says is dependent upon irritation of the branches or ganglion¹⁹ of the trigeminus.

The outer and middle ear being supplied with a rich network of nerves, and having numerous connections with other nerves, may be at fertile source of reflex symptoms which may manifest themselves in diverse ways. Such symptoms may present themselves in the respiratory, gastro-intestinal, cardiac, sympathetic and central nervous systems. In cases of persistent cough of obscure origin or in cases of other bizarre respiratory manifestations, the ears ought to be examined as a possible source of reflex irritation. Cases of gastro-intestinal disturbance are not frequent but probably more so than is suspected. All cases of nervous and mental disturbances should have a thorough otologic examination to eliminate foci of irritation which may be productive of reflex symptoms.

The symptoms arising from ear conditions may be divided into two groups, (1) direct or proximate and (2) remote or reflex. Among the direct or proximate symptoms are fullness of the ear, diminished hearing or deafness, ear noises and pain. These are symptoms that are readily traced to the ear. In the cases of remote or reflex symptoms, we have an entirely different state of affairs and where there are no aural symptoms the relationship is often overlooked and the attention is focused entirely upon the distant organ apparently afflicted.²⁰

The appearance of a facial paralysis in the course of an acute otitis media is very uncommon, when we consider the number of acute ear cases encountered. Clinically facial paralysis is divided into a central and peripheral variety. The central type includes the paralysis which is produced by a lesion of the neurones and axones above the facial nucleus in the pons. The peripheral are those which are due to a lesion of the nucleus or of the nerve distal to it. Most facial paralyses are of peripheral origin.

The mode of involvement of the facial nerve in acute otitis media cannot be determined with certainty, but may be calculated from a study of the anatomic relationships. The outer wall of the Fallopian canal, containing the facial nerve as it crosses the inner wall of the middle ear cavity, is often almost membranous in thinness and sometimes actually has a hiatus in its bony continuity. There are other openings in the bony wall between the canal and the tympanic cavity, such as those for the passage of the chorda tympani nerve, the branch from the facial to the stapedius muscle and the tympanic branch of the stylomastoid artery. It is thought that these offer avenues for the spread of infection.

Paralysis of the facial nerve is brought about either by direct involvement of the nerve and its sheath or by the pressure of the exudate within the Fallopian aqueduct or by pressure from the tympanum. According to Politzer, dehiscences in the Fallopian canal do not necessarily produce facial paralysis, because in caries and

necrosis of the walls of the cavum tympanum, the facial nerve has been found lying free in the tympanic cavity, completely surrounded by pus without symptoms of facial paralysis having existed.

Ney, finding his experience with a great number of infected war wounds, demonstrated that an intact nerve trunk is very resistant to surrounding suppurative processes but the nerve is susceptible to the influence of apparently minor degrees of compression. The anatomic peculiarity of the facial nerve—i.e., its course through a bony canal which it entirely fills and to which its sheath is intimately attached, is such as to convert even slight vascular changes into definite compressive factors. Furthermore, it is apparent that congestion, hemorrhage or pressure of mild inflammatory exudates within or without a nerve sheath, in an unyielding bony canal, could produce functional disturbances. The firm attachment of the sheath of the nerve to the periosteum of the facial canal tends to localize these compressive factors rather than allow their spread along its course.

The treatment of facial paralysis with acute otitis media is primarily that of the ear condition per se and physiotherapy (galvanism) should be applied in the prolonged facial paresis cases.²¹

Roy A. Barlow, in his studies and experiments, has been unable to demonstrate that deafness is caused by a diet deficient in vitamins. Changes in the bones were not noted by the silver salt method in animals fed on diet deficient in Vitamin D and nerve changes are not demonstrable in the presence of a diet deficient in Vitamin B. There remains the vague possibility that a diet deficient in Vitamin A, which is found most abundant in butter fats and which produces such marked changes the mucous membranes of the respiratory tract, might cause enough edema in the eustachian tube and middle ear to be responsible for impairment of hearing during later life, but this is purely hypothetical.

Further study of vitamins, mineral and metal salts may elicit additional facts which may be of inestimable value as regards knowledge of the contents of the bone.²²

Because its anatomic base is best known, spontaneous nystagmus is the most important symptom produced by the labyrinth. But the clinical evaluation of spontaneous nystagmus is made more difficult because this nystagmus can be produced by various organs. The labyrinth, the eyes and the brain will be considered here. From the otologist's point of view, one can divide spontaneous nystagmus into a labyrinthine and a non-labyrinthine type.

The differential diagnosis between labyrinthine and non-labyrinthine nystagmus cannot always be arrived at; nevertheless, in the great majority of cases, it can be successfully made and for this purpose Hans Brunne utilizes the following points.

1. Dizziness—labyrinthine nystagmus is always accompanied by labyrinthine dizziness (turning dizziness, tactile dizziness)—non-labyrinthine nystagmus may be accompanied by dizziness; however, it is not a labyrinthine character.

2. Association of eye movements—Spontaneous labyrinthine nystagmus always exhibits associated eye movements,—when spontaneous nystagmus shows dissociated eye movements, one may be sure it is of non-labyrinthine origin.

3. Form of nystagmus—Spontaneous labyrinthine nystagmus in its typical form is combined horizontal and rotatory or only rotatory. Diagonal spontaneous nystagmus is practically always and vertical spontaneous nystagmus is often non-labyrinthine in origin. However, if vertical nystagmus is accompanied by labyrinthine dizziness, it is of labyrinthine origin.

Brunner investigates optical nystagmus by means of a revolving umbrella. It consists of a paper cylinder having a height of 30 cm. and a diameter of 70 cm. On the inner surface are two vertical black stripes which occur at intervals of 30 cm. The cylinder is suspended and the patient is seated within the circle. He is told to look at the black stripes while the umbrella is slowly revolved. Coarse horizontal nystagmus to the left is observed when the umbrella is turned to the right and vice versa. If one then examines the patient who has spontaneous labyrinthine nystagmus, the results are the same as those obtained in a normal person. If now one subjects a patient with spontaneous non-labyrinthine nystagmus to the test, the abnormalities are seen in the experimental optical nystagmus.²³

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Testicular Grafting from Ape to Man. By Serge Voronoff and George Alexandrescu. Translated by Theodore C. Merrill, M.D. Pp. 125. Brentano's Ltd., London.

This work in English gives Voronoff's newer views on the subject of testicular grafting, with operative technique, physiological manifestations, histological evolution and statistics. The statistics cover 475 cases and successes are considered only in those in which physical and mental improvement has persisted for five or six years.

Practical Massage and Corrective Exercises. By Hartvig Nissen. Fifth edition. F. A. Davis Co., Phila., 1929. Pp. 271. Price, \$2.50 net.

This is the textbook used at the Posse-Nissen School of Physical Education and is divided into three parts: the different manipulations and their effects; applied anatomy and corrective exercises, and treatment of various diseases and injuries, including a discussion of flatfoot. It is an interesting book and will continue as one of the authoritative works on this subject.

The Physician's Library

Pathological Physiology of Internal Diseases: Functional Pathology. By Albion Walter Hewlett, M.D., B.S., formerly Professor of Medicine, Stanford Medical School, Professor of Internal Medicine and Director of Clinical Laboratory, University of Michigan. New York and London. D. Appleton and Company. 164 illustrations. 787 pp. including index. Price \$8.50.

This, the third edition of an American classic, inspires an appreciation, rather than a review. The late Dr. Hewlett was a physiologist first and a practitioner afterward, so that he personified modern medicine in so far as it is applied physiology. His book embodies this concept faithfully and brilliantly. This third edition has been brought up to date by nine of his colleagues who have used Hewlett's own notes and plans for the purpose. So it is still his book in a very real sense. "There are no dead," says Maeterlinck. Hewlett surely lives again in this edition of his book. This labor of love has been done under the able editorship of one of the nine, Dr. George De Forest Barnett. The result has been a *marrying* of the science and art of medicine, since for a time the two pursued separate courses, with the former quite a bit out of sight of the latter. Not only has the latter caught up in the race, but been merged in the former. This happy consummation, therefore, marks Hewlett as one of that great group who have once again, in a kind of sacramental sense, revealed the priest phase of our calling. It will not be denied that the element of sacredness enters into these things, so momentous for the sick, and so vital to our art. This work, one of the most striking of medical achievements by an individual genius, is indispensable to modern-minded practitioners.

The Physician Throughout the Ages. A Record of the Doctor from the Earliest Historical Period—Embracing a General Survey of the Practice of Medicine—The Social History of the Doctor—With Medical Chronology and Biographies of Outstanding Physicians. Issued in two volumes. Volume II. By Arthur Selwyn-Brown, B.Sc., M.A., Ph.D., assisted by Distinguished Medical Specialists. Leather. Price, \$25 per set of two volumes. 854 pp. with numerous illustrations. Index of Subjects, Index of Names, Bibliography and Chronology. New York: Capehart-Brown Company, Inc. 1928.

This, the second volume of Dr. Arthur Selwyn-Brown's work on *The Physician Throughout the Ages*, completes a monumental task. The talents of a galaxy of most distinguished contributors have been pooled to produce it. It is our understanding that the proceeds of this publication's sale will go toward the support of the Canadea Home for Aged Physicians, with which our eminent colleague and editorial associate on the *MEDICAL TIMES*, Dr. Robert T. Morris, has been so closely identified. The work is so vast in scope that a detailed review would be inexpedient. Aside from its value as a record and tribute the motive for publication merits the highest praise and the heartiest support.

General Medicine. The Practical Medicine Series. Edited by Drs. George H. Weaver, Lawrason Brown, George R. Minot, William B. Castle, William D. Stroud, Ralph C. Brown. The Year Book Publishers, Chicago. 1929. Pp. 829. Price, \$3.00.

This is one of the important books of the year as it epitomizes very well many of the recent advances in medicine, taken from various publications throughout the world. The matter is well chosen and the editorial notes giving the editors' personal opinions are excellent. It does not seem possible that over eight hundred pages in one volume, so well printed and bound, could be sold for such a small sum. For quick reference it serves a purpose to the busy practitioner. Practically every disease considered has an editorial note giving newer advances in medicine. The volume is divided into Infectious Diseases, Diseases of the Chest, Diseases of the Blood and Blood-making Organs; Diseases of the Kidneys, Heart and Blood Vessels and Diseases of the Digestive System and Metabolism. The book is well illustrated.

Grenz Ray Therapy. By Gustav Bucky, M.D. Translated by Walter J. Highman, M.D. The Macmillan Co., N.Y. 1929. Pp. 170. Price, \$3.50.

Dr. Bucky is the pioneer in the field of Grenz Ray therapy. He takes up the technical questions about the Grenz ray range and its application to therapy. The technic and dosage are considered after an exhaustive study of the physical foundations of this method of treatment. The dangers are dealt with and the treatment of skin diseases and internal diseases by this ray is taken up in detail.

Recent Progress in Pediatrics

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Introduction

During the past year pediatric efforts have been devoted mainly to various scientific researches. In a short article it is impossible to call your attention to all of these researches, so I am attempting merely to point out those facts which are of every-day need in the care and feeding of infants and children.

Diabetes

Since the advent of insulin almost ten years ago, the mortality of this disease in childhood is no greater than that in adult life, provided the patient is "diabetic-wise" and cooperates with the family physician. To Joslin we are indebted for much of our knowledge of the best methods of handling this condition with the diet and insulin. Joslin and White¹ give us a clear outline of diabetes of today with what we can expect with successful treatment. From the standpoint of heredity, he calls attention to the fact that 34.8 per cent of his cases have diabetes in their ancestry. Hence families having a diabetic ancestry should avoid obesity, "the best preventive for diabetes we know."

Joslin believes diabetic coma is needless. Teach the patient and the patient's family the symptoms of impending coma and what to do—namely: "Call the physician; go to bed; take an enema; keep warm; take a cupful of warm liquid every hour and be waited on." Joslin suggests to the physician: "Insulin, 10-20-30 or 40 units every half hour until the urine is nearly sugar-free; gastric lavage for a dilated stomach; salt solution by rectum, subcutaneously or intravenously. Caffeine for the heart." This should conquer your diabetic coma.

Joslin feels that it is permissible for diabetic patients to marry, provided they have proved themselves masters of their disease and are financially able to care for themselves.

To prevent morning glycosuria in diabetes, Joslin recommends insulin administered an hour before breakfast or 2 to 5 units on retiring the previous night. This method stores glycogen in the liver and with glycogen in the liver diabetes is never severe. Additional aids are light carbohydrates for breakfast with a few minutes exercise before it.

Infections complicating diabetes invariably aggravate the disease. "The mortality can be greatly reduced by a skilled adjustment of diet and insulin during the period of infection. Continue the carbohydrates, slight reduction of protein, and a greater reduction of fat." Insulin is administered every 4, 6, or 8 hours in such doses as are required to hold glycosuria low or cause it to disappear.

Attention is called to the similarity of the symptoms of acute appendicitis and diabetic coma, namely: nausea, vomiting, pain in the abdomen, leukocytosis. When in doubt—operate.

Insulin reactions are rarely fatal. More food is nature's call when a reaction occurs.

Aspiration in Empyema of Children

Empyema is a problem at best, and the question of operation and aspiration of the fluid is always with us. McEnery and Brennermann² have called our attention to two main facts: first that children under two years of age do better with aspirations than they do with the

emergency open operation; second, that empyema in children is not an emergency, and operation may be delayed as large amounts of pus can be absorbed.

The aspiration is done with a large Luer syringe, after local anaesthesia induced by 1 per cent Procaine Hydrochloride. In their (McEnery and Brennermann) series the aspiration was done from one to eleven times—the average being four. The number of aspirations were dictated by: "the general condition of the child, the evident amount of pus, the degree of respiratory embarrassment, the location of the heart, and the temperature curve—and always we leaned toward delay rather than haste."

The Present Status of Vitamines B and D

The secret of proper infant feeding is to give the infant all the elements necessary for normal growth and development. To date we have been unable to do this either by maternal or artificial feeding.

During the past three years much work has been done in the field of vitamins. However, the vitamins B and D have been the source of most study. No vitamin has been isolated in its pure form to date. Vitamine D, the anti-rachitic vitamin, is the one we are most interested in at the present time. Previously, cod-liver oil was our best source of this factor, but due to the digestive disturbances produced by large doses, we were unable to supply enough to meet the needs of the growing infant. About three years ago it was discovered that the active vitamin D was present in ergosterol. Steinboch, Hess and others found that when ergosterol was irradiated, its potency was greatly increased.

A rather complete bibliography of the work done with irradiated ergosterol will be found in an article by Karellitz: "Activated Ergosterol in Treatment of Rickets," *American Journal Diseases of Children*, Vol. 36, No. 6, Dec., 1928.

Hess³ summarizes our present-day knowledge of this new and indispensable remedy in the prevention and cure of rickets. In this article Hess summarizes the work to date with irradiated ergosterol, and gives us a clear understanding of the present status. The fear of hyper-calcemia may be eliminated if the doses recommended are followed. During the past year the various preparations on the market have been standardized so that they have 100 times the vitamin D potency of a standard cod-liver oil. A dropper comes with each bottle and is calibrated to deliver 40 drops to each c.c. The doses are given in drops as follows, as recommended by Hess⁴: 8 to 10 drops a day for infants growing at the normal rate. Premature and exceptionally rapid-growing infants must be considered as a special group and dosage gauged accordingly. This latter group needs at least 15 drops daily, and even more if signs of rickets develop. If loss of appetite or slight diarrhea should supervene, the irradiated ergosterol should be discontinued temporarily.

For cure, 15 drops a day are given in mild rickets, and 20 drops daily in moderate cases. In cases of severe rickets even larger doses may be given. However, when larger doses are given for a moderate period of time, calcium phosphate determinations of the blood should be made.

Irradiated ergosterol has a tendency to exert its ef-

fect for a considerable length of time after it has been discontinued. For this reason it may be advantageous to interrupt the treatment for prophylactic purposes.

The vitamine BB is divided into two factors, namely, one destroyed by heat: the anti-neuritic factor; the other undestroyed by heat: the pellagra-preventing factor. A third factor is thought to exist but to date we have nothing definite in regard to it.

Hoobler⁵ describes a group of symptoms which he attributes to an insufficient amount of vitamin B. This symptom complex consists of (1) anorexia, (2) loss of weight, (3) spasticity of arms and legs, (4) rigidity of the neck, (5) restlessness, (6) fretfulness, (7) pallor with a low hemoglobin. This symptom complex disappears with the addition of one-half teaspoonful of brewers yeast to the diet.

Dennett⁶ agrees with Hoobler and others that the vitamine B factor should be added to the infant's diet as a routine prophylactic measure. Dennett used a sugar (Vitavose) made from the wheat germ, which is extremely rich in this factor. One level tablespoonful provides as much anti-neuritic factor as one quart of milk, and as much pellagra-preventing factor as ten ounces of milk. This sugar was well borne by the average infant, but it was found to be more laxative than the dextrin-maltose sugars. This laxative action is probably due to some unidentified chemical substance in the wheat germ rather than to the roughage action. This character of the sugar makes it of great value in constipation. Normal infants tolerate this sugar well, and can be fed in amounts of one or one and one-half ounces as the added sugar. (3 level packed tablespoonfuls are equivalent to one ounce.) With small infants and those with a tendency to loose stools, it is best to give only one or two tablespoonfuls, in conjunction with some less laxative sugar.

West⁷, recognizing the fact that many nursing mothers give milk more or less deficient in this vitamine, has outlined a diet for the nursing mother. This is the usual well balanced diet with an additional amount of raw vegetables and one tablespoonful of the wheat germ sugar (Vitavose) added to a glass of milk. West's conclusions were that many breast-fed babies were fretful and irritable, with poor appetites, and no gain in weight, but did well when the vitamine B was supplied to the mother's diet. The breast milk improved both in quality and quantity.

Moore et al.⁸ is of the opinion that the increase of pylorospasm and pyloric stenosis may be due to a vitamine B deficiency in the mother during the prenatal and lactating period. By tests on rats fed on a diet deficient in vitamine B, it was seen that many of their offspring had pyloric stenosis. Those thus affected showed a myelin degeneration of the motor nerves in the pyloric region. Clinically, Moore points out the fact that cases of pyloric stenosis show the hypertonicity, irritability and other evidence of a vitamine B deficiency. Recognizing the fact that mothers require 3 to 4 times the vitamine B factor during pregnancy and the lactating period, he recommends that they receive 3 grams of dessicated yeast (Northwestern Yeast Co.) daily.

Summarizing the work done to date: Hoobler, Marcy, Dennett, Moore, West and others are of the opinion that vitamine B should be added to infants' dietary as well as the vitamine C, or the anti-scorbutic vitamine, and vitamine D—the anti-rachitic vitamine. This is done by adding it to the diet of the lactating mother or by putting it in the formula of the artificially fed. The best sources are: dessicated yeast, brewers yeast and the wheat germ sugar (Vitavose).

A Food for Milk Idiosyncrasy

Milk allergy in infants under one year of age has always been a great problem. No method of feeding without milk met with success for we could not supply the proper proteins with all the amino-acids needed for growth. Recently Hill and Stewart⁹ began looking for a source of protein which contained the amino-acids. Soy bean flour was selected because of its high protein and amino-acid content. The mineral elements in soy bean are sufficient in quantity except for chlorine, calcium and sodium. The formula decided upon was as follows:

Barley flour	9.50%
Soy bean flour	
(ground press cake)....	67.50%
Olive oil	18.95%
Sodium Chloride	1.35%
Calcium Carbonate	2.70%
	100.00

This formula was prepared by Mead Johnson and Co. and made available under the name of "Sobee."

The composition of the dried product is:

Fat	22.50
Protein	33.20
Carbo.	32.80
Salts	8.50
Moisture	3.00

When mixed in the proportion of 6 tablespoonfuls to 7 ounces of water, we have a mixture with the following percentages:

Fat	2.81%
Carbohydrate	4.07%
Protein	4.15%
Salts	1.06%
pH.	7.2 %
Cal. per oz.	17. %

The percentages are very similar to whole cow's milk so an added sugar is necessary as with the ordinary artificial formula. It is best to start the food rather weak, depending on the size and age of the infant. Small, young infants can tolerate about half strength to begin with, gradually increasing to the caloric requirements.

The present indications for this method of feeding are: first, milk idiosyncrasy, and second, the severe general eczema or the so-called exudative diathesis.

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Molluscum Contagiosum in Turkish Baths

C. G. Crowley, who records three illustrative cases, states that Malcolm Morris, Crocker, and Hutchinson drew attention to the association of Turkish baths and molluscum contagiosum in England. Molluscum contagiosum is very rarely encountered in Australia, so that the incidence of three cases in two days recently seen by Crowley at Melbourne is very unusual. In each case the patient had attended the same Turkish bath a week or so before the eruption appeared. The proprietor of the baths was accordingly warned of the necessity of boiling towels, mats, and similar material, and of treating the slabs with steam and disinfectant.—*M. J. Austral.* p. 806, June 15, 1929.

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Medical Progress Number

The MEDICAL TIMES thanks most gratefully the eminent men who have undertaken to scrutinize the vast fields of research and practice which constitute modern medicine, in order to present our readers with an inspiring epitome of progress during the past year. The subscribers are to be congratulated upon the high order and comprehensiveness of the material which the MEDICAL TIMES has been enabled to make available to them by reason of the zeal, scholarship and powers of discrimination herein displayed.

The Quarterly Cumulative Index Medicus

In the *Journal of the American Medical Association* of December 7, the editor again discusses the Quarterly Cumulative Index Medicus. One gathers that this publication is to be continued by the Chicago Sanhedrim's arbiter, but in the restricted way against which protests have been lodged. The editorial ends on the following curious note: "The sad aspect of the matter is that the steady maintenance of this altruistic scientific work should have to pause, even for a moment, to hearken to the buzzing of flies on the chariot wheels, which want to know where the vehicle is going." In view of the fact that Dr. William S. Thayer, as President of the Association, recently took the profession into his confidence and very frankly discussed the In-

dex and the Association's proper relation to it, this characterization of "flies" seems singularly inept. Surely the editor is under duress to frame an alibi of some sort.

His policy as to Prohibition and Medicine is not a secret. The chariot (steam-roller) wheels must again have paused, we fancy, when the same Dr. Thayer voiced the profession's true feeling about laws which violate our supposed American heritage. Was that, too, the buzzing of vermin?

Malocclusion: A Major Clinical Problem

Perhaps the most striking development of twentieth-century medicine is a return to the idea of the inseparability of structure and function foreshadowed by that mighty genius, Leonardo da Vinci. One of the most familiar applications is to be noted in the constant invocation of physiology on the part of the surgeon, who to-day may truly be said to be a physiologist first and a surgeon afterward. The surgical invasion of the gastro-intestinal domain, for example, is nowadays strictly predicated upon functional considerations. In this editorial it is our purpose to call attention to the manner in which specialists practising orthodontia are invoking function in their treatment of malocclusion, showing that they have been in the forefront of the modern movement.

The utilization of the principles worked out by the orthodontists is not alone for them, at least not as regards diagnosis; and a not unimportant part of the treatment should be shared by others. The clinician cannot neglect these principles, for if a child is unable to masticate properly how can he grow in stature and vigor, and how can his facial contours reasonably satisfy esthetic standards? And it is not enough to diagnosis malocclusion and then relegate the problem to the orthodontist with little or no attempt at team work. There is much that the clinician can do to aid the orthodontist.

The war saw a great impetus given to operative facial reconstruction, surgeons and dentists doing wonderful work, but the general profession has perhaps not fully realized the achievements of orthodontists who in civil practice are now revolutionizing their art and science along functional lines, with the most direct bearing upon digestion, nutrition and health. This editorial is a plea for fuller recognition and understanding of this admirable work and for closer cooperation between physician and orthodontist. The inspiration behind this significant advance represents an order of genius quite comparable to that leading to our greatest medical achievements.

The man who found orthodontics an art and made of it a science as well is Dr. Alfred Paul Rogers, A.M., D.D.S., of Boston, who, in 1918, promulgated the fundamental principles of the new dispensation. His original article on the treatment of malocclusion by the invocation of "living orthodontic appliances" (the muscles of the jaws and face) was truly of an epoch-making character, worthy to rank in its thorough breadth and depth of insight with other classic contributions in the field of medicine ("Exercises for the Development of the Muscles of the Face, with a View to Increasing their Functional Activity. *Dental Cosmos*, Vol. 60, No. 10, p. 857).

From Rogers' many papers we cull the following points. Balance of functional elements is the theme

underlying modern orthodontic procedure. Harmonious action of the muscle groups concerned is quite as important a factor as their increased strength. Mechanical forces alone only partially attain wished-for results. The muscles are "living orthodontic appliances." They are themselves machines. These appliances are already in relatively correct position, do not need to be removed for adjustment or for cleansing, improve in efficiency of performance following intelligent use, and, as bone is plastic, they stimulate its growth when properly brought to bear. When they are enemies we must make allies of them. The principles involved are *fundamental* in treatment and retention. It is possible to show in a very considerable number of instances that actual development of bony tissue and increase in the size of the dental arches may be obtained through intelligent treatment by means of the "living orthodontic appliances." Many of the simpler and some of the more complex cases can be treated successfully without mechanical appliances. When mechanical appliances have to be used the Rogers technic frequently makes it possible to simplify them. All this presupposes no "interferences" or the removal of interferences.

Through exercise of the masseter-temporal group it is possible to develop either the maxillary or mandibular arch. With this "orthodontic appliance" it is also possible to correct retrusion of the mandible and prevent recurrence. As a by-product in orthodontic treatment of this nature we find that there is produced a quality which is almost always lacking when treatment is undertaken purely by mechanical means, namely, the full efficiency of the function of mastication.

In certain circumstances the external pterygoid group of muscles may be successfully employed unaided by mechanical apparatus. This group is frequently employed erroneously, where, for example, a slightly narrowed maxillary arch interferes on both sides. There must be preliminary correction of this and other points of interference.

Exercise of the orbicularis by the Rogers method rebuilds short and weak upper lips and thick, flabby lower lips. With strong, well developed lips a child is much less likely to breathe through the mouth, to have ill-shaped anterior arches and anterior teeth, and to maintain an improper "posture" of the mandible. A weak orbicularis favors eating with the mouth open, which invites protrusion of the upper incisors. The point about mouth breathing is most important, for how often persistence in this habit follows the removal of naso-facial obstructions!

Development brought about by increased function needs no retention apparatus, but development brought about by mechanical means alone must be retained mechanically until the muscular function has been well developed.

The understanding of the normal processes of nature, coupled with an intelligent and cautious re-education of the abnormal individual, is the scientific basis upon which modern orthodontics rests.

Since in many of these cases the fundamental difficulty is constitutional, much is to be done besides removing adenoids and tonsils when indicated. Insufficient development of the jaws, particularly of the mandible, calls for proper diet, exercise of the "living orthodontic appliances," and fortified cod liver oil or irradiated ergosterol as well as orthodontics of the mechanical order. But nothing avails

fully unless proper muscular function is established.

Deficiency of vitamin D causes failure of normal calcification. When orthodontic corrections are needed it is advisable to insure the presence of this vitamin in amounts adequate to promote normal mineral metabolism. The rickety dyscrasia is frequently an underlying factor of overwhelming influence. On experimental animals Howe of the Forsythe Institute of Boston produced malocclusion by feeding a diet deficient in vitamins and calcium through an arrest of maxillary and mandibular development. Malnutrition may therefore act as both cause and effect, carrying with it the evils of faulty posture, subnormal chest development and spinal curvature, especially when associated with mouth breathing.

In so far as milk and soft, refined foods usurp unduly the place of dietary elements whose mastication develops the jaws and their muscles, failure of the molars and premolars fully to erupt will tend to complicate matters, and this condition (the orthodontist's "infraversion") directly favors one type of malocclusion.

The orthodontic dumb-bell of Dr. Henry C. Ferris, of New York, is signally useful in increasing the dimensions of the dental arches and in developing the temporal and masseter muscles. It is a cylindrical device of rubber with an enlarged spherical head at one end; with it masticating and triturating exercises may be performed.

The six-year molars serve the important function of maintaining, through the influence of the inclined planes of their cusps, the normal mesio-distal relationship of the upper and lower arches. This is the key to the Angle system which classifies the three great types of malocclusion. For a clear exposition of this system James David McCoy's *Applied Orthodontia* is recommended to the interested reader, while in Abt's *Pediatrics* will be found an excellent presentation of the general subject of malocclusion by B. G. de Vries, D.D.S.

The physician cannot but be impressed by the relationship of malocclusion to many medical conditions the successful management of which depends upon recognition of the masticatory defect. It therefore behooves every clinician to regard malocclusion as a major problem, to understand its underlying factors, and to cooperate intelligently with the orthodontist in remedying a common defect which tends strongly to invalidate general physical health and featural beauty.

Cancer Among Physicians

The *Journal of the American Medical Association* published during the year 1928 the obituaries of 2792 United States physicians and 111 from Canada, making a total of 2903 of whom 76 were women.

The February 16 issue of the journal tabulates the foremost causes of death in order as heart disease, cerebral hemorrhage, pneumonia and nephritis, and makes the following editorial comment on the incidence of cancer:

"Cancer, with 248 deaths, holds fifth place, as it did in the 1926 group. Cancer, however, caused more deaths in fifth place in the 1928 group than it did in fourth place in the 1927 group, the increase being twenty. There were in all twenty sarcomas included among the 248 cancers. Cancer of the stomach and liver accounted for seventy-five deaths; cancer of the intestine, thirty-six; of the buccal cavity (which here includes the throat also), twenty-two; of the prostate, twenty; of the female genital organs, four; of the skin, one; and in ninety cancer cases the organ affected was not specified. Thirty-three per cent of the cancer deaths occurred after the physicians were seventy years of age, and that percentage was just the same as in the preceding year."—*Colorado Medicine*, September 1929.

